

Library of the Museum
OF
COMPARATIVE ZOÖLOGY,

AT HARVARD COLLEGE, CAMBRIDGE, MASS.

Founded by private subscription, in 1861.

*from the
Essex Institute.*

*No. 4108
1*

BULLETIN

OF THE

ESSEX INSTITUTE,

VOLUME IV,

1872.

SALEM, MASS.:

PRINTED AT THE SALEM PRESS.

1873.

CONTENTS.

	Pag .
Regular Meeting, Monday, January 1,	1
<div style="padding-left: 2em;">Puritan Holy Days, by A. C. Goodell, Jr., 2. Injurious Insects in Essex County, by Dr. A. S. Packard, 5. F. W. Putnam's Remarks on the Caterpillars and Pupæ of the Cabbage Butterfly, 9.</div>	
Letters Announced, 19, 23, 27, 46, 49, 56, 61, 75, 83, 103, 132, 151, 160, 165, 177, 178	
Additions to Library, 9, 11, 19, 24, 27, 46, 49, 56, 61, 76, 83, 103, 131, 152, 158, 161, 166, 177, 179	
Additions to Cabinet,	85, 178
Additions to Historical Department,	104
Deficiencies in Library,	12
Publications of Institute,	14
Regular Meeting, Monday, January 15,	10
<div style="padding-left: 2em;">A Trip to California by Rail, by J. J. H. Gregory, Esq., of Marble- head, 10, 17.</div>	
Regular Meeting, Monday, February 5,	17
<div style="padding-left: 2em;">Florida Indians, by M. R. Kimball, 18.</div>	
Regular Meeting, Monday, February 19,	20
<div style="padding-left: 2em;">Passion Play at Ober-Ammergau, by J. P. Putnam, 20.</div>	
Regular Meeting, Monday, March 4,	25
<div style="padding-left: 2em;">The Old Carved Chair, by E. W. Farley, of Newcastle, Me., 25. A Relic of "Ye Olden Times"—Stone Mill—D. L. D. Balch, 26. The Closing History of the Branch or Howard St. Church in Salem, by Rev. C. C. Beaman, 26. Communication from Nehemiah Cleveland, of Westport, Conn., 27. Meteorology of Mount Washington, by S. A. Nelson, 29, 41.</div>	
Regular Meeting, Monday March 18,	41
<div style="padding-left: 2em;">Essex County Spiders, by J. H. Emerton, 47.</div>	
Regular Meeting, Monday, April 1,	48
<div style="padding-left: 2em;">Communication from James Kimball, 50. Communication from Com- modore B. F. Sands, of the U. S. Naval Observatory, 55.</div>	
Regular Meeting, Monday, April 15,	57
<div style="padding-left: 2em;">On the Transit of Venus, 57. Ancient Topography of Salem, by James Kimball, 59.</div>	
Regular Meeting, Monday, May 6,	61
<div style="padding-left: 2em;">Ancestry of Susannah Ingersoll; The Fairfax and the Hathorne House, by the President, 62. The Rattle of the Rattlesnake, by F. W. Putnam, 65.</div>	

Annual Meeting, Wednesday, May 8,	66
Retrospect for the Year, 66. Officers elected, 74.	
Regular Meeting, Monday, May 20,	75
Native Plants, by J. Robinson, 76. Remarks of G. D. Phippen, 78; of E. C. Bolles on the <i>Houstonia</i> , 78; of J. H. Emerton, 78. A Visit to Jeffries Neck, by F. W. Putnam, 79.	
Regular Meeting, Monday, June 3,	81
Field Meeting at Middleton, Wednesday, June 12,	81
Account of the Ramble, 82; First Field Meetings; Dr. W. Stimpson, by the President, 85. Resolutions on the Death of Dr. Wm. Stimpson, 88. Early Meetings of the Society, by S. P. Fowler, of Danvers, 89. Historical Notices of Middleton, by David Styles, of Middleton, 90. Indian Relic, by D. J. Tapley of Danvers, 92. F. W. Putnam's Remarks, 93. Spiders at Middleton, by James H. Emerton, 94. Microscopic Fungi, by Rev. E. C. Bolles, 95. Report of the Committee on Lectures, 96. Vote of thanks passed, 97.	
Field Meeting at Groveland, Tuesday, July 16,	97
The New Iron Bridge, 98. Historical Notices, 100. E. S. Morse's Remarks, 107. Merrimack Academy, by Dr. J. Spofford, 108. Remarks by J. H. Emerton, A. S. Phipps, S. C. Beane, E. C. Bolles, La Roy F. Griffin, Mr. Goldsmith and C. H. Webber, 114-116. Vote of thanks passed, 116. The First White Hamburg, and the First Muscat of Alexandria Grape-vine imported into the United States, by Jones Very, 117.	
Field Meeting at Annisquam, Thursday, August 8,	118
Remarks of the President, 121. Indian Shell Heaps, and Egg Case of the Skate, by F. W. Putnam, 123. Historical Notices of the Third Parish at Annisquam, by Rev. E. W. Coffin, of Orange, Mass., 124. Remarks of Allen W. Dodge, L. J. Livermore and James Davis, 128. Historical Sketch of Annisquam, by J. J. Babson, 128. Remarks of C. E. Barnes and Dr. A. Davis, 130. Communications from Thomas Spencer, of Bransby, near Lincoln and E. W. Farley, of New Castle, Me., 132. Remarks of R. Knowland, 134. Catalogue of the Mammals of Florida, with Notes on their Habits, Distribution, etc., by C. J. Maynard, 135-150.	
Quarterly Meeting, Wednesday, August 14,	150
Regular Meeting, Monday, October 21,	150
Explorations of St. George's Bank, by Dr. Packard, 153. Ancient Indian Carving, by F. W. Putnam, 156.	
Regular Meeting, Monday, November 4.	160
Origin of Surnames, by Geo. H. Devereux, 162.	
Regular Meeting, Monday, November 18,	165
Communication by the President, 166. Remarks of F. W. Putnam, 168.	
Regular Meeting, Monday, December 9,	169
Ferneries, How to make them, and what to put in them, by J. Robinson, 169.	
Regular Meeting, Monday, December 23,	178
Communications from P. A. Hanaford and Nehemiah Cleaveland, 179.	

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 4. SALEM, MASS., JANUARY, 1872. No. 1.

One Dollar a Year in Advance. 10 Cents a Single Copy.

REGULAR MEETING, MONDAY, JANUARY 1st, 1872.

THE PRESIDENT in the chair. Records of preceding meeting read.

The President mentioned a few of the associations that cluster around this day ; a day when the mind naturally reverts to the past, recalls the incidents of the year now closed, and indulges in reveries upon their probable influence in the distant future. No one can foretell the results ; some of the most seemingly important will soon pass away and be forgotten, whereas the most apparently trivial, scarcely known beyond the threshold of the humble cot of the occurrence, will, as years roll on, become the centre of great interest and attraction, as the birthplace and home of some of nature's noblemen. He briefly alluded to the holidays that occur near the close of the old and the beginning of the new year, and called upon Mr. A. C. GOODELL, JR., who spoke of the estimation in which these days were held in the early period

of our colonial history, and the great change in the mode of observance within the past few years.

PURITAN HOLY DAYS.

Our forefathers, the Puritans, observed but three classes of holy days; namely, Sabbaths, Fasts and Thanksgivings. In the observance of the first they differed from the Catholic church and from most of the Reformed churches by devoting them exclusively to religious exercises after the Mosaic model. It was on account of this difference between them and their neighboring Protestants in Holland, that the Pilgrims left that country for America. Here they enforced, by law, the strictest observance of the Lord's day, and established periodical fasts and days of thanksgiving.

The first thanksgiving in Massachusetts was observed at Salem, July 8, 1630. Winthrop and his immigrants had arrived about a month before, bringing provisions of which the settlers under Endicott stood greatly in need. Two days before the thanksgiving, Gov. Winthrop's son Henry was drowned in attempting to swim across the North river, after a canoe; so that the occasion was mixed with sadness.

The next thanksgiving was observed at Boston, February 22, 1631. This was on account of the arrival of the ship *Lyon*, with provisions, which came the day before a fast which had been appointed on account of a threatened famine. The fast was immediately changed to a thanksgiving.

The next and first general thanksgiving was kept by the seven plantations then established, Oct. 16, 1633, and was ordered "in regard of the many and extraordinary mercies which the Lord hath been pleased to vouchsafe of late to this plantation; namely, a plentiful har-

vest, ships safely arrived with persons of special use and quality," etc.

After the arrival of the Province charter, only one instance occurs of a day of thanksgiving set apart by act of the General Court. This was passed Nov. 13, 1693, and the day appointed was Dec. 21, O. S., corresponding to Jan. 2, of our present calendar. Since that time all thanksgiving days have been fixed by executive proclamation, and not by act of the legislature.

CHRISTMAS.

The next subject discussed was Christmas; which was at first a movable feast, celebrated, usually, in April or May. It was probably instituted in the second century, but was not fixed by the Catholic Church, upon Dec. 25, until the pontificate of Julius I., in the fourth century.

The tradition of the church is that the birth of Jesus occurred at midnight, whence the custom in England and some other countries of ringing the church bells at midnight, early dawn, and again in the morning.

The different methods of celebrating the day in different countries and ages were then explained. The revels of the Lord of Misrule commenced at All Hallow Eve (Oct. 31), and continued to Candlemas (Feb. 2). Every day after Christmas was a holiday until twelfth night (Jan. 6). The season was always considered propitious in England, a tradition made memorable by the words of Marcellus to Horatio in the first scene in Hamlet:—

"Some say that ever 'gainst that season comes
Wherein our Saviour's birth is celebrated,
The bird of dawning singeth all night long;
And then, they say, no spirit stirs abroad;
The nights are wholesome; then no planets strike,
No fairy takes, nor witch hath power to charm,
So hallowed and so gracious is the time."

The Puritans were greatly opposed to the observance

of the day, and in 1659 the following law was passed by the Colonial legislature of Massachusetts :—

"For preventing disorders arising in several places within this jurisdiction by reason of some still observing such festivals as were superstitiously kept in other countries, to the great dishonor of God and offence of others, it is therefore ordered by this Court and the authority thereof that whosoever shall be found observing any such day as Christmas or the like, either by forbearing of labour, feasting or any other way, upon any such accounts as aforesaid, every such person so offending shall pay for every such offence five shillings, as a fine to the county."

This ordinance was objected to by the Royal Commissioners in 1665 ; but was not repealed until May 27, 1681.

In three years less than two centuries after the passage of this ordinance, the Legislature [1856, chap. 113], made this day a legal holiday on which even the sovereign legislature is not permitted to sit, and all government offices are closed.

NEW YEAR'S DAY.

New Year's day was then considered. The beginning of the year was very various in different ages and countries. Until the middle of the eighteenth century there were no less than seven days reckoned as this period ; viz.,—Jan. 1 (as now) ; Jan. 1 (one year in advance) ; Dec. 25 ; Easter ; March 1 ; March 25 (nine months sooner than the present time) and March 25 (three months later than the present time). This last, called the Florentine style or calendar, was the one in use in England and this colony until 1752, when it was changed to Jan. 1, and the Gregorian calendar adopted instead of the Julian which had been previously in use. The necessity of this change was then explained.

The Romans from whom we get the names of our months began the year with March, hence September, as its name implies, was really the seventh month, October the eighth, and so on.

An account was then given of the different ways in which New Year's day (Jan. 1) has been celebrated from the time of the Romans, when it was kept in honor of Janus, until the present time.

What the Romans had observed as a feast in honor of the double-faced deity, celebrating it by kindly salutations and the exchange of presents—each taking care during the continuance of the celebration, that all his words and acts should be pure and blameless—was turned by the church into a fast; and New Year's gifts were repeatedly forbidden under severe penalties. In England, however, the heathen practice of exchanging presents was never overcome by the Church; so strong a hold does it seem to have had in the popular sentiment. Indeed the custom seems to have been older, in Britain, than the time of the Roman invasion. About the only public celebration of New Year's in England at this day is the ringing in of the new year and ringing out of the old.

The present year is memorable as the first year in which the heads of departments at Washington, and many other prominent men following their example, have resolved to furnish no intoxicating drinks to those who, in observance of the time honored custom of New York, celebrate the day by making calls upon the ladies of their households.

INJURIOUS INSECTS IN ESSEX COUNTY.

Dr. A. S. PACKARD spoke of several species of insects injurious to vegetation noticed during the past season in this vicinity—specifying among others

THE ONION THRIPS.

About the middle of August my attention was called by Mr. B. P. Ware of Swampscott to serious losses of his onions from the attacks of a minute insect. The leaves were observed to turn suddenly yellow and to wilt, and the plant die. In this way large patches became infested and turned yellow, until in two or three days these prolific insects spread over the whole field. They seemed to increase most rapidly during the unusually dry hot weather that we experienced about the middle of last August. On the 11th of August a whole acre was thus cut off. Mr. Ware informed me that onion plants have been more or less infested in this way for some fifteen years, but the damage done this year was greater than ever before. This evil seems wide spread in Essex County, as not in Swampscott alone, but in Lynn, Salem and parts of Danvers, the onion crop had been similarly infested. About \$100,000 worth of onions are raised in Essex County alone, and Mr. Ware judged that at least a tenth part was destroyed by this new pest, so that in one county alone and from one kind of injurious insect we have in one season lost \$10,000. The onion crop is next to the hay crop in value, as it is sold for cash.

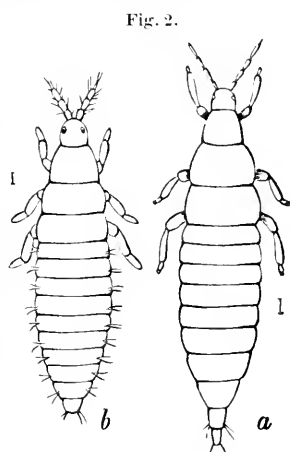


On examining the specimens brought into the Museum of the Peabody Academy of Science, the leaves were found to be covered with hundreds of a minute thrips which by gnawing the surface of the leaves had caused them to turn white in spots, and subsequently yellow; where they were most numerous the outer skin of the fleshy leaves was entirely eaten off, and though it was difficult to imagine that so minute an insect could have

caused the death of so stout and thick-leaved a plant, yet here were hundreds of the culprits in all stages of growth plying their jaws before our eyes in proof.

This insect, which occurred in both sexes and in all stages of growth from larvæ of minute size proved to be the wheat thrips (*Limothrips tritici*) of Fitch who gives an account of its appearance and habits in his "Second Report on the Noxious Insects of New York," p. 304.

Through the kindness of C. L. Flint, Esq., of the Mass. State Board of Agriculture, we are enabled to present figures of these insects taken from Dr. Packard's Report to the Board as State Entomologist. The females alone are winged, the males being wingless and closely resembling the larvæ. The body of the female (Fig. 1) is smooth and shining, uniformly greenish yellow with no other markings; the legs are a little paler towards articulations. The larva (Fig. 2, *b*) is entirely greenish-yellow, the head and prothorax of



Larva and male of *Limothrips tritici*.

End of antennæ of male.

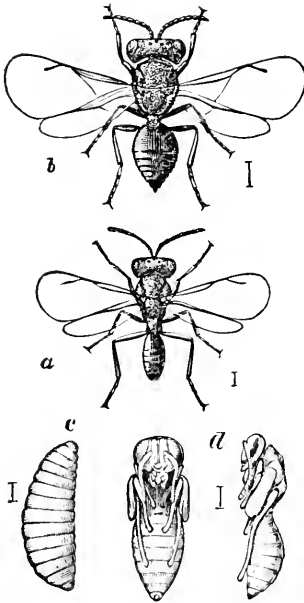
the same color as the rest of the body. The male (Fig. 2, *a*) differs from the larva in having 2-jointed feet (tarsi) and 7-jointed antennæ, those of the larva being 4-jointed. The small line at the side of each figure indicates the natural size of the insect.

THE ONION FLY.

which in its larval condition attacks the roots of the

onion, was briefly alluded to. It appears about the middle of May and continues its ravages until nearly the third week in August, when it changes into the pupa or chrysalis state.

Fig. 3.



Parasite of the Imported Cabbage Butterfly.

IMPORTED CABBAGE CATERPILLAR AND ITS PARASITE.

was next mentioned. This caterpillar during the past summer has been fearfully abundant in gardens in this vicinity, and would have done still greater injury to the growing crops were it not for the presence of the parasite which had been found to prey upon it very extensively.

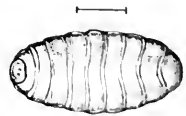
The figures annexed illustrate the several stages (Fig. 3, *a*, male; *b*, female; *c*, larva; *d*, pupa) of this invaluable ichneumon parasite which is one of the Chalcid family, and is the *Pteropis puparum* of Linnaeus.

Dr. Packard had supposed that this parasite had perhaps been imported with its host, but it is now found to be a native of this country as well as of Europe, and cited authorities confirmatory of this assertion.

LARVA OF TACHINA.

Another parasite which he mentioned was the larva of a parasitic fly, *Tachina* (Fig. 4, enlarged three times), the adult form of which closely resembles the common house fly. It is a flattened,

Fig. 4.

Larva of *Tachina*.

cylindrical maggot, both ends of the body rounded much alike.

Mr. PUTNAM remarked that he had collected several hundred of the caterpillars and pupæ of the cabbage butterfly during the month of September, the caterpillars having crawled up the side of his house from an adjoining field where a large number of cabbages had been entirely destroyed by them. He had noticed that a very large number of the pupæ were infested by parasites, many of which came out during the month of September and in October. The butterfly will be out early in the spring.

Discussion followed on these and kindred subjects, participated in by Messrs. Packard, Putnam, Bolles, Goodell and the chair.

William Gardner Barton of Salem and Beaman Gates of Beverly were elected members.

The LIBRARIAN reported the following additions :—

By Donation.

GREEN, S. A., of Boston. Miscellaneous pamphlets, 24.

HINGHAM AGRICULTURAL AND HORTICULTURAL SOCIETY. Transactions for 1871. 8vo pamph. 1872.

HOLDEN, N. J. Wells' English Grammar, 1 vol. 12mo. The Commonwealth, 245 nos. The Liberator, 171 nos. National Anti-slavery Standard, 253 nos. Lynn News, 25 nos. Saturday Night Press, 10 nos. Miscellaneous pamphlets, 50. Miscellaneous serials, 10.

HOLMES, JOHN C., of Detroit, Mich. Michigan School Report for 1870. 1 vol. 8vo. Lansing, 1870.

LEE, GEO. C. New York City Directories, 1858, 1865, 1866, 1867, 1869, 1870. 6 vols. 8vo. Boston Directories, 1858, 1860, 1861, 1862, 1863, 1866, 1867, 1868, 1869, 1870. 10 vols. 8vo. Bankers' Magazine, Vols. II, III, 1847-8, 1848-9. 2 vols. 8vo. Boston Board of Trade, 1855, 1868. 2 vols. 8vo. Water Power of Maine. 1 vol. 8vo. Report of the Commissioners of Patents for 1851. 1 vol. 8vo. Commercial Relations of U. S., Vols. I, II. 2 vols. 4to. Washington, 1856-1857.

LEE, JOHN C. Commercial Bulletin for Dec., 1871.

VINTON, JOHN A. Giles' Memorial. 1 vol. 8vo. Boston. 1864.

WILDER, MARSHALL P., of Boston. Historical Address before the Massachusetts Agricultural College, July 19, 1871. 8vo pamph.

WILLIAMS, HENRY L. The National Eagle, 1870. 8 nos. Miscellaneous pamphlets, 6.

By Exchange.

ACADÉMIE IMPÉRIALE DES SCIENCES BELLES LETTRES ET ARTS IN BORDEAUX. Actes. 3e Série. 31e Année. 1869. 8vo. Paris. 1869.

KÖNIGLICH BAYERISCHEN AKADEMIE DER WISSENSCHAFTEN ZU MÜNCHEN. Sitzungsberichte der philosophisch-philologischen und historischen Classe. 1871. Heft I, II, III. 8vo pamphlets. München. 1871. Sitzungsberichte der mathematisch-physikalischen Classe. 1871. Heft I, II, III. 8vo pamph. München. 1871. Die Aufgabe des chemischen Unterrichts gegenüber der Anforderungen der Wissenschaft und Technik. Rede gehalten in der öffentlichen Sitzung der k. Akademie der Wissenschaften am 25. Juli. 1871, von Dr. Emil Erlenmeyer. 4to pamph. München. 1871.

MASSACHUSETTS HISTORICAL SOCIETY. Collections. Vol. x. Fourth Series. I vol. 8vo. Boston. 1871.

SOCIEDAD DE NATURALISTAS NES-GRANADINOS. Exploracion entre San José De lieuta I el Río Magdalena, 8vo pamph. Bogota, 1871. Informe de los Exploradores del Territorio De San Martin. 8vo pamph. Bogota, 1871. Catálogo del Estado S. De Antisquia, 8vo. pamph. Bogota, 1871.

SOCIÉTÉ IMPÉRIALE DES SCIENCES NATURELLES DE CHERBOURG. Memoires. Tome xv. 1870. 8vo pamph. Cherbourg, 1870. Catalogue de la Bibliothèque. 8vo pamph. Cherbourg, 1871.

PUBLISHERS. American Naturalist. Christian World. Gloucester Telegraph. Haverhill Gazette. Land and Water. Lawrence American. Little Giant. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem Observer. Shoe and Leather Journal. Silliman's Journal.



REGULAR MEETING, MONDAY, JANUARY 15th, 1872.

THE President in the chair. Records of preceding meeting read.

A TRIP TO CALIFORNIA BY RAIL.

J. J. H. GREGORY, Esq., of Marblehead gave a familiar talk upon California, and the things to be seen along the route of the Pacific railroad, beginning at Omaha. His descriptions were plain, graphic and interesting. Speaking of agriculture in Utah, he said the process of irrigation as carried on there was far less costly than he had supposed, as it consisted of the making of mere furrows with the plough. He spoke of the elements of dissolu-

tion in the Mormon system of polygamy, the principal one of which was the great influx of gentiles, though dissension in the church itself was doing much to undermine the system. Rents in Salt Lake City he described as "terrific," and the term was not too strong, judging from a single instance which he named, where the keeper of a rum shop paid seven thousand, two hundred dollars in rent and liquor tax for his room of thirty feet by eleven—about half the amount being for rent.

The Rocky Mountain slopes, the general scenery, the many miles of grain fields, and the agriculture of California, were described.

Oleanders were seen eighteen feet in height, Century plants thirty and forty feet. In Sacramento these bloom when fifteen years old. He also described the fruits, strawberries being sold at twenty-five cents for three quarts. Of the California wines he had a poor opinion so far as his observation extended, and judging by his own standard of taste.

Mr. Gregory will continue his remarks at the next meeting.

The LIBRARIAN mentioned the following additions:—

By Donation.

- BOLLES, E. C. Miscellaneous pamphlets, 19.
 COLE, Mrs. N. D. Salem Gazette for 1871.
 FOOTE, CALEB. Files of several county papers for Oct., Nov., Dec., 1871.
 NATIONAL ASSOCIATION OF WOOL MANUFACTURERS. Bulletin for Oct., 1871.
 PALFREY, C. W. Miscellaneous pamphlets, 33.
 POORE, BENJ. P., of Washington, D. C. Washington and Georgetown Directories for 1865, 6, 7, 8. 4 vols. 8vo.
 U. S. A. CHIEF OF ENGINEERS. Report on Geological Exploration of the 10th Parallel. Vol. V, Botany. 1 vol. 4to. Washington, 1871.

By Exchange.

- ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA. Proceedings of. Part II. April-Sept., 1871. 8vo pamph.

BOSTON NUMISMATIC SOCIETY. American Journal of Numismatics for Jan. 1872. 8vo pamph.

HISTORICAL SOCIETY OF DELAWARE. Catalogue of, with its History, Constitution and By-laws. 8vo. pamph.

NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY. Register and Antiquarian Journal of Jan., 1872. 8vo pamph.

PUBLISHERS. American Literary Gazette. Gloucester Telegraph. Haverhill Gazette. Lawrence American. Little Giant. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Quarritsch's Catalogue. Sailors' Magazine and Seamen's Friend. Salem Observer. Shoe and Leather Journal.



DEFICIENCIES IN THE LIBRARY.

It is intended from time to time to publish lists of deficiencies in the Library hoping that the friends of the Institute, who may notice the same, will be induced to aid in completing the sets. Any number or volume, not designated (within brackets) under any title, will be acceptable.

DEFICIENCIES IN DIRECTORIES.

[Continued from volume iii, page 96.]

WASHINGTON, D. C., by E. A. Cohen [1834]; by A. Reintrel [1843]; by Gaither & Addison [1846]; by E. Waite [1850]; by A. Hunter [1853]; by L. Ten Eyck [1855]; by W. H. Boyd [1858, 1860]; by T. Hutchinson & Bro. [1863]; by A. Boyd [1864, 1865, 1866]; by W. H. Boyd [1867, 1868, 1869, 1870].

SOUTHERN CITIES, by John P. Campbell [1851]; by W. R. Dunkley [1866-67].

VIRGINIA Directory and Business Register, by Elliott & Nye [1852].

RICHMOND, VA., by John Maddox [1819]; by E. Fuslew [1860]; by Mills & Starke [1866].

WHEELING, WEST VA., by Williams & Co. [1867-8, 1868-9].

CHARLESTON, S. C., by J. H. Bagget [1852].

AUGUSTA, GA., by E. H. Paghe [1867].

SAVANNAH, GA., by Purse & Son [1866].

MOBILE, ALA., by Fawn & Dennett [1834, 1836].

JACKSON, MISS., by J. L. Power [1860].

NEW ORLEANS, LA., by Cohen [1849]; by R. C. Kerr [1856]; by C. Gardner [1859].

TENNESSEE STATE Gazetteer and Directory, by J. L. Mitchell [1860].

MEMPHIS, TENN., by Tanner, Halpin & Co. [1859]; by Williams [1860].

NASHVILLE, TENN., by J. P. Campbell [1853, 1855-6, 1857, 1859]; by E. D. King. [1855, 1866, 1867, 1878, 1869].

LOUISVILLE, KY., by G. Collins [1836].

LAKE SHORE Gazetteer and Business Directory [1844-2].

C. C. C. & I. R. R. Gazetteer by Hynes Bro. [1870-1].

AKRON, ALLIANCE, CUYAHOGA FALLS, MIDDLEBURY, KENT, CANTON, RAVENNA, MASSILLON, SALEM, WOOSTER, OHIO, by Wiggins & Weaver [1870-1].

CHILLICOTHE OHIO, by J. B. Doyle [1855-6]; by Williams & Co. [1869-70].

COLUMBUS, OHIO, by J. R. Armstrong [1843-4, 1855]; by Williams & Co. [1867-8, 1839-70].

CINCINNATI, OHIO, by C. S. Williams [1848-9, 1850, 1852]; by Robinson & Jones [1849]; by D. F. Shaffer [1849]; by C. S. Williams [1849-50, 1850-1, 1851-2, 1853, 1855, 1856, 1861, 1859, 1867, 1858, 1866].

DAYTON, OHIO, by C. S. Williams [1860-1].

SANDUSKY, OHIO, by W. D. Root [1855].

SPRINGFIELD, OHIO, by Williams & Co. [1848-9].

STEUBENVILLE, WELLSVILLE, EAST LIVERPOOL, and WELLSBURGH, OHIO, by Wiggins & Weaver [1870-1].

STEUBENVILLE, OHIO, by C. S. Williams [1856].

TOLEDO, OHIO, by C. S. Williams [1850]; by Scott [1865, 1867].

XENIA, OHIO, by Williams & Co. [1870-1].

ZANESVILLE, OHIO, by C. S. Williams [1860-1].

WESTERN RESERVE Register, by Sawyer, Ingersoll & Co. [1852].

DETROIT, MICH., by Dunclee, Wales & Co. [1859]; by C. F. Clark [1865-6].

INDIANA, STATE. State Gazetteer and Business Directory by G. W. Hawes & Co. [1823]. State Gazetteer and Shipper's Guide, by M. V. B. Cowen [1866-7].

INDIANAPOLIS, Ind., by R. Edwards [1856, 1867]; by Logan [1847-8]; by H. N. McEvoy [1858-9]; by Hawes & Co. [1855] by R. Edwards [1866]; by Logan [1858]; by R. Edwards [1869]; by Hutchinson [1870].

ILLINOIS STATE Business Directory, by Smith & Du Moulin [1860]; Northern Counties, by E. H. Hall [1855-6]; State Gazetteer and Business Directory, by G. W. Hawes [1858-9].

ILLINOIS AND MISSOURI State Directory by W. L. Montague [1851-5]. Central Directory by James P. Crawford [1869].

CHICAGO, ILLINOIS, by O. P. Hatheway & J. H. Taylor [1849-50]; by E. H. Hall [1855-6]; by John Gager [1857]; by Tanner, Halpin & Co. [1858]; by R. V. Kennedy [1859-60]; by T. M. Halpin & Co. [1860-1]; by Smith & Du Moulin [1860]; by T. M. Halpin [1861-2, 1862-3, 1863-4, 1874-5, 1855-6] by J. T. Hair [1865-6]; by R. Edwards [1867]; by Smith & Du Moulin [1859]; by W. S. Spencer [1864-5]; by W. F. Bartlett [1857-8]; by R. Edwards [1869].

GALESBURG, ILLINOIS, by O. E. Root [1861].

WILL COUNTY, ILLINOIS, by J. C. W. Bailey [1859].

PUBLICATIONS OF THE ESSEX INSTITUTE. 1872.

JOURNAL OF THE ESSEX COUNTY NATURAL HISTORY SOCIETY. 1 vol.

8vo. 1836-1852. pp. 135. In paper,	§0 50
Bound,	1 00

PROCEEDINGS AND COMMUNICATIONS. 8vo. 6 vols. 1848-1868. [The Proceedings close with the sixth volume.] The series, in numbers,

Bound in cloth,	25 00
Vol. I. 1848-1854. pp. 275,	2 00
" II. 1856-1858. pp. 438, 1 plate,	2 00
" III. 1858-1863. pp. 301,	2 00
" IV. 1864-1865. pp. 418, 15 plates,	6 00
" V. 1866-1867. pp. 569, 4 " and <i>Naturalists' Directory</i> ,	6 00
" VI. 1868-1871. pp. 259, 2 plates and 31 cuts,	3 00

[These volumes contain a large number of descriptions and figures of new species, especially of Corals, Insects and Polyzoa; and many valuable papers on Natural History. The first three volumes also contain many important Historical papers. In addition to the papers on special subjects, the volumes contain the proceedings of the meetings of the Institute, the records of additions to the library and museum, and many important verbal communications made at the meetings, etc. The *Naturalists' Directory* is also issued under the same cover with vols. IV. and V. Vol. VI. closes the series.]

BULLETIN. 8vo. Issued in monthly parts of about 16 pages each.

Subscription per annum,	1 00
Single numbers,	10
Vol. I. 1869. pp. 161,	1 00
" II. 1870. pp. 178,	1 00
" III. 1871. pp. 178,	1 00
" IV. 1872. Subscription,	1 00

[The *Bulletin* takes the place of the *Proceedings of the Institute* which close at the date of the commencement of the *Bulletin*. This publication will contain all the short communications of general interest, both of an Historical and Scientific character, made at the meetings of the Institute, and the record of the meetings and business of the Institute. Occasional lists of the deficiencies in the library of the Institute, and of the duplicate books offered for sale or exchange will be given.]

NATURALISTS' DIRECTORY. Issued with Proceedings, Vol. V, 1867.

[This work contains the addresses and departments of study of the Naturalists, Collectors and Taxidermists, in North America at the date of publication.]

Separate from Proceedings, paper covers, \$1 00
 " " " bound and interleaved, 2 00

HISTORICAL COLLECTIONS. First series, Vols. 1-8, small 4to.
 " " Second series in 8vo, commencing with Vol. 9.

The 10 vols. in paper covers, 20 00
 " 10 " " cloth binding, 30 00
 Vol. I. 1859. pp. 206. Steel plate, 3 00
 " II. 1860. pp. 319. 3 00
 " III. 1861. pp. 298. 3 00
 " IV. 1862. pp. 289. 3 00
 " V. 1863. pp. 289. Steel plate, 3 00
 " VI. 1864. pp. 274. 3 00
 " VII. 1865. pp. 287. 3 00
 " VIII. 1866. pp. 267. 3 00
 " IX. 1868-9. (Vol 1 of 2d series. 8vo.) pp. 374. 3 00
 " X. 1869-70. pp. 319. Steel plate, 3 00
 " XI. 1871. Subscription, 3 00

The *Historical Collections* contain papers wholly of an Historical and Genealogical nature, and are most valuable to the student of early American History. Many important manuscripts and public and private early records are printed in these volumes for the first time, as well as papers specially prepared on topics relating to the early history of Massachusetts. Several Genealogies of leading families connected with the early settlement of the country are also contained in the volumes.]

THE WEAL-REAF. Published for Institute fair in 1860. Small 4to. pp. 56. 30
 TO-DAY. Published for the Institute and Oratorio fair, 1870. pp. 38. . . . 50

Besides the above publications, the following works are offered for sale :

ALLEN, J. F. Victoria Regia, or the Great Water Lily of America. Royal folio, six colored plates, 1854, 10 00
 ALLEN, J. A. Foray of a colony of Formica Sanguinea upon a colony of Black Ants. 1868,* 10
 BALCH, D. M. On the Sodalite at Salem. 1864,* 10
 BALCH, D. M. Analysis of Grapes. 1865,* 10
 BRIGGS, G. W. Memoir of D. A. White. Pamphlet. 8vo, 1864,* 30
 COUES, ELLIOTT. List of the Birds of New England, with critical notes. Pamphlet, 8vo, 1868,* 75

DERRY, PERLEY. Hutchinson Family. 1 vol., Svo. 1870.*	2 00
ENDICOTT, C. M. Account of Leslie's Retreat. Pamphlet, Svo. 1856.	25
ENDICOTT, C. M. Account of the Piracy of the ship Friendship of Salem in 1831. Pamphlet, Svo, 1858,*	15
ESSEX INSTITUTE. Historical notice of, with the Constitution, By-laws, and lists of the Officers and Members. Pamphlet, Svo, 1866.	25
FOWLER, S. P. Account of the Life, Character, etc., of Rev. Samuel Parris, and of his connection with the Witchcraft Delusion of 1692. Pamphlet, Svo, 1857.*	15
GILL, T. Prodrome of a Monograph of the Pinnipedes (seals). 1856,*	25
HYATT, A. Observations on Fresh-water Polyzoa. 103 pages, 9 Plates and 25 Cuts, Svo, 1868.*	2 50
KIMBALL'S Journey to the West in 1817. Pamphlet, Svo,*	15
LORD, O. P. Memoir of A. Huntington. Pamphlet, Svo, 1871.*	35
McILWRAITH, T. List of Birds of Hamilton, Canada West. Pamphlet, Svo, 1836,*	15
PLUMMER HALL, Dedication of. Pamphlet, Svo, 1857.	30
PREBLE, GEORGE HENRY. The First Cruise of the United States Frigate Essex. Pamphlet, Svo,*	1 00
PUTNAM'S and PACKARD'S Notes on Humble Bees, etc. Wild Bees of New England, their Parasites, etc., with a plate. Pamphlet, Svo, 1865,*	75
SALEM TOWN Records of. 1831 to 1859. Svo, 1868,*	2 50
SHUTTLEF, C. A. Report on the Army Worm. 1862.*	10
STREETER, G. L. Account of the Newspapers and other Periodicals published in Salem. Pamphlet, Svo, 1856,*	15
UPHAM, C. W. Memoir of Francis Peabody. Pamphlet, Svo, 1860,*	50
UPHAM, C. W. Memoir of D. P. King. Pamphlet, Svo, 1869,*	30
UPHAM, W. P. Memoir of Gen. John Glover of Marblehead. Pamphlet, Svo, 1863,*	50
WEINLAND, D. F. Egg Tooth of Snakes and Lizards. Pamphlet, Svo, with a plate, 1857,*	15
WHEATLAND, H. Notice of the Pope Family. Pamphlet, Svo, 1867,*	25
WHITE, D. A. Covenant of the First Church. Pamphlet, Svo, 1856,*	10
WHITE, D. A. New England Congregationalism. 1 vol. Svo, 1861.	1 00
WILDER, B. G. Researches and Experiments on Spider's silk. 1866. Cuts,*	50
WOOD, HORATIO C. Pimplæ of United states. 1868. Cuts of most of the species,*	1 50

*Those marked with a star are extra copies from the Proceedings and Historical Collections.

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 4. SALEM, MASS., FEBRUARY, 1872. No. 2.

One Dollar a Year in Advance. 10 Cents a Single Copy.

REGULAR MEETING, MONDAY, FEBRUARY 5TH, 1872.

THE President in the chair. Records of preceding meeting read.

CONTINUATION OF MR. GREGORY'S REMARKS ON CALIFORNIA.

J. J. H. GREGORY of Marblehead continued his remarks on his journey to California. He commenced with his visit among the Mormons at Salt Lake City, and described them as a temperate, industrious, thriving and religious community. Their leader appeared to be a man of rare sense and judgment. He briefly commented on the nature of the country lying between the Mormon community and San Francisco, and gave a very interesting account of his visit to the latter city and of what he saw therein. The Sabbath, by a large portion of the business people, was observed as other days. No paper money is used. Gold and silver only are circulated, and nothing less than ten cents is known.

He referred to the Chinese as a neat and orderly class of people, and more susceptible to moral and religious

influences than many supposed. They are first met at Ogden, and at San Francisco occupy exclusively one or more streets. They have their own amusements, including theatre, etc.; a visit in their midst, gives one, for a time, the impression that he is in China.

He noticed the mining towns many of which are nearly forsaken; the mining regions, and showed how by the process of mining, the soil was forever rendered useless for tillage; and the parks of big trees, of the latter many figures were given to show their size. Some of these trees are covered with bark thirty-two inches in thickness, while others, of enormous proportions otherwise, run up one hundred and twenty-four feet without losing more than a single foot in diameter. In his estimation most of the trees were not less than ten, eleven, or twelve hundred years old.

The beautiful and romantic scenery of the Yo-semite valley, which was also visited, he described in a very graphic and interesting manner.

FLORIDA INDIANS.

The following extract of a letter from Mary R. Kimball, of Salem, a teacher among the freedmen, dated Apalachicola, Fla., Dec. 25th, 1871, was read:—

APALACHICOLA, December 25, 1871.

I have been trying to get some information as to the Indian Mounds in this vicinity. One of the oldest of the "freed people" came in to see me, and said, "I am the oldest man in this place."

"Well" said I, "you are just the man I want to talk with. What do you know about those Indian mounds? Did they live there, or did they bury in those heaps?" "No" he said, "I have talked with some of the chiefs, and they told me that they were thrown up for defence; you will find them about every mile for a long distance. If you could find their graves, you would find buried with them a bowl of something to eat, with a spoon at their head, and a rifle at their side, as they were going to better hunting-grounds than we had here." "Why"

I asked, "are there so many conch shells around these places?" "They ate them as we do oysters; why, out in the woods there was a pile twenty feet high, but they have hauled many of them away to build up the roads. The different tribes and the Spanish would fight, and if you will go down to where the Flint and Chattahooche rivers fork and enter the woods, you will discover these mounds thrown up and will find skulls perforated by bullets; I have found them myself."

One of the colored men found an earthen jar last fall. He thought there was money in it, but finding none he left it in disgust. He said it would hold about two gallons.

I am going to get some one to direct me to these places when I can leave, and I will do all that I can to examine them.

The SECRETARY announced the following correspondence:—

From the Buffalo Historical Society, Jan. 22; a circular of the Chicago Academy of Sciences, an account of the loss of its building, collections, library, etc., in the great fire of Oct. 9, 1871; Maine Historical Society, Jan.; New England Historical-Genealogical Society, Jan. 22; New York Historical Society, Jan. 22; F. D. W. French, Boston, Feb. 3; Charles B. Moore, New York, Jan. 30; Feb. 1; S. A. Nelson, Georgetown, Jan. 16, 23; James Riker, Waverly, N. Y., Jan. 16.

The LIBRARIAN reported the following additions:—

By Donation.

- BOLLES, E. C. Portland Directory for 1869. 1 vol. 8vo.
 BROOKS, Mrs. H. M. Woman's Journal for 1871.
 BUTLER, B. F., M. C. Conkling's Speech in U. S. Senate, Jan. 11, 1872. Report of the Department of Agriculture for Jan., 1872.
 FREKE HENRY. The Dependence of Life on Decomposition, by H. Freke. 8vo pamph. Dublin, 1871.
 GREEN, S. A., of Boston. Miscellaneous pamphlets, 4.
 LANGWORTHY, L. P. Catalogues of Mt. Holyoke Female Seminary for 1838-9, 1850-1, 1856-7.
 PERKINS, JONATHAN C. Catalogue of Amherst College, 1871-2. Exercises at the Semi-centennial of Amherst College, July 12, 1871.
 RHODE ISLAND SOCIETY FOR THE ENCOURAGEMENT OF DOMESTIC INDUSTRY. Transactions of 1855, 6, 7, 8, 9, 60, 1, 2, 3, 4, 5, 6, 7, 8, 9, 70. 16 pamphlets. 8vo.
 ROBINSON, JOHN. Railway Times. 150 nos. Miscellaneous pamphlets, 50.
 ROPES, WM. L., of Andover. Catalogue of Andover Theological Seminary, 1871-72.
 ST. JOHN & COFFIN of New York. The Cabin Book; or National Characteristics by Chas. Sealsfield. 1 vol. 12mo.
 SUMNER, CHAS., U. S. Sen. Land Office Report for 1869. 1 vol. 8vo. Washington, 1870.

By Exchange.

BIBLIOTHÈQUE UNIVERSELLE ET REVUE SUISSE. Archives des Sciences physiques et naturelles, Dec. 15, 1871. No. 168. 8vo. pamph. Genève. 1871.

HARVARD COLLEGE LIBRARY. Report of the President and Treasurer of Harvard College, 1870-71.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY. Seventh Annual Catalogue of the Officers and Students, 1871-2. Boston, 1872.

NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY. Proceedings of, at the Annual Meeting, Jan. 3, 1872.

PUBLISHERS. American Chemist. American Journal of Science. American Literary Gazette. American Naturalist. Christian Register. Christian World. Essex County Mercury. Fireside Favorite. Gloucester Telegraph. Haverhill Gazette. Land and Water. Lawrence American. Little Giant. Lynn Reporter. Lynn Transcript. Nation. Nature. Peabody Press. Salem Observer. Shoe and Leather Journal.

Horatio C. Merriam of Salem, elected a resident member.



REGULAR MEETING, MONDAY, FEBRUARY 19, 1872.

President in the chair. Records of preceding meeting read.

PASSION PLAY AT OBER-AMMERGAU.

JUDGE JOHN P. PUTNAM of the Superior Court read a very interesting paper descriptive of the performance of the "Passion Play" at Ober-ammergau, which he witnessed in 1871. The audience listened with marked attention, and the Judge's description was exceedingly graphic and curious.

Ober-ammergau is a secluded village in the highlands of Bavaria, and presents, as it is gradually approached, a very picturesque appearance, nestled in a plain of green fields, with snow-capped mountains in the background, a cluster of quaint looking cottages, built of stone covered with plaster, having the low broad Swiss roof, and each with its little garden of vegetables and rose trees. In the centre is the church, an object of veneration, love and tender care, as the exquisite neatness of the interior, and

of the exterior with its surroundings, amply testify. The inhabitants, numbering some twelve hundred, are peasants and with few exceptions, carvers in wood, an occupation which tends to raise them above the ordinary farmer.

Many of their carvings are really art works and bear marks of careful study. An atmosphere of general peace and good will seems to pervade the place, the villagers pursue the even tenor of their ways, making their faith their life, and cultivating those traits of character so essential to the performance of this duty in fulfilment of a vow made during a terrible pestilence in 1633.

When the pestilence was at its height, the poor peasants vowed to God, that, if He would stay the plague, they would perform every ten years, in token of their deep gratitude, this sacred drama representing the character of Christ from His entrance into Jerusalem to His ascension; this has religiously been continued with scarcely an omission every ten years to the present time.

The Judge then gave a brief outline of the history of the sacred drama; a history which exhibits very clearly the gradual development of Christianity out of the forms and customs of Paganism, in the early period of the Church. Under the papacy of Gregory the Great the germs of the true mystery plays are found; the Church then began to commemorate by processions with choruses, chants and dialogues, scenes of the passions and of the resurrection of the Saviour, and the various events of His life. He spoke of the popularity of these plays, in England, in the middle of the fourteenth century, and their continuance to a later period in Germany, Spain and Italy and to their final interdiction, generally, at the close of the last century.

The performance of these plays has been several times prohibited; the villagers of Ober-ammergau have however

always succeeded in obtaining a dispensation in their favor. The time for its last performance was 1870, but the breaking out of the war between France and Prussia compelled its postponement to the next year. To illustrate its hold on the hearts of the people, Judge Putnam stated that the villager who personated Christ was drafted into the army, but he was permitted to wear his long hair, and so careful were the authorities and soldiers for his safety, that he was never placed in an exposed position, but was confined to garrison duty.

The account of the performance was minute and impressive. The stage occupies about twenty thousand square feet, with a fine opportunity for grand scenic effects. The performers number in all about six hundred; and although the services commenced at 8 A. M., and lasted eight or nine hours, there was nothing from beginning to end calculated to excite anything but feelings of profound emotion and reverence. Some of the spectacles were of exceeding beauty. The music was solemn and inspiring. It is not allowed to be written and no one is permitted to commit a note to pencil and paper. Two years previous to the performance the principal characters are selected, and the individual representing Christ must allow his hair to grow that length of time, also those who represent Joseph of Arimathea and many of the disciples. On the January preceding, the rehearsals commence and continue several times a week.

The theatre is capable of seating some five or six thousand people, and entirely uncovered excepting the first and second row of boxes. The play is given on every Sunday and festival day from May to September inclusive, upwards of twenty times in all, so that during the course of the summer one hundred thousand persons can see it. Everybody seems to be inspired with the occasion—the peasants

of the neighboring villages, the great and fashionable world, and the ordinary tourist, were all there, as well as the Catholic Priest, the Anglican minister, and the Protestant dissenting minister, thus showing sympathy and favor.

We shall not attempt a report of Judge Putnam's description ; it must be listened to in order to be properly appreciated. He described the opening chorus, the tableaux which precede and illustrate each act, the great taste and discipline which pervade the performance, and each of the eighteen or twenty acts in detail, beginning with the triumphal entrance of our Lord into Jerusalem at the rising of the curtain, and continuing through the High Priests in council ; the departure of Jesus from Bethany, and the taking leave of his mother ; the last supper ; the betrayal and the kiss ; Jesus before Caiaphas ; despair of Judas ; Christ before Pilate ; the scourging and crowning with thorns ; the sentence ; Christ bearing the cross ; the crucifixion ; and the resurrection and the ascension.

There was nothing, the lecturer said, in all this to offend the most delicate taste, or that was inconsistent with devotional emotions or religious instincts. Men and women go up to the performance, once in ten years, as if it were the Mecca of their spiritual pilgrimage ; and the entire representation, when once beheld, is a scene never to be forgotten.

At the close of the lecture several photographs of the scenes described were exhibited, which added much to the permanent impressiveness of his remarks, and terminated an evening of singular and profound interest and suggestiveness.

The SECRETARY announced the following correspondence :—

From C. C. Beaman, Cambridge, Feb. 7, 15 ; E. S. Joslin, Media, Penn., Feb. 9 ; Lucy Larcom, Boston, Feb. 17 ; S. A. Nelson, Georgetown, Feb. 6 ; William S.

Perry, Geneva, N. Y., Feb. 3; J. P. Putnam, Boston, Feb. 14, 4; W. Hudson Stephens, Lowville, N. Y., Feb. 10; Bruxelles, Académie Royale des Sciences, des Lettres et des Beaux-arts, Jul. 15, 25, Aout 30; Buffalo Historical Society, Feb. 14; Dresden, Verein für Erdkunde, Oct. 15; Genève Société de Physique et d'Histoire Naturelle, Oct. 1, Gortitz, Die Naturforschende Gesellschaft, Nov. 18; Hague, Entomological Society of the Netherlands, Dec. 12; London, Linnean Society, Aug. 2; Lugduno-Batavae, Bibliotheca Universitatis, July 25; St. Petersburg, La Société Entomologique Russe, Oct. 21; Upsal, Société Royale des Sciences, Nov. 1; Washington, Smithsonian Institution, Jan. 20; Wien, Verein zur Verbreitung naturw. Kenntnisse.

The LIBRARIAN reported the following additions :—

By Donation.

BETLER, BENJ. F., of Washington, D. C. Speech of Hon. G. F. Hoar of Mass. in U. S. House of Reps., Jan. 25, 1872. 8vo pamph. Remarks of Hon. Ellis H. Roberts of New York in U. S. House of Reps., Jan. 31, 1872. 8vo pamph. Speech of Hon. Geo. C. McKee of Mississippi in U. S. House of Reps., Feb., 1872. 8vo pamph.

GARRISON, W. P., of New York. Constitution and By-laws of New England Society of Orange, New Jersey, 1871. 16mo pamph.

HAVEN, HENRY P. Reports concerning the Public Schools of New London, 1871. 8vo pamph.

KIMBALL, JAMES. Massachusetts Register for 1869. 1 vol. 8vo.

LEE, JOHN C. Commercial Bulletin for Jan., Feb., 1872.

NATIONAL ASSOCIATION OF WOOL MANUFACTURES. Bulletin. Vol. III. No. 1. Jan.-March, 1872. 8vo pamph.

SUMNER, CHAS., of Washington, D. C. Laws of the United States. 3d Session, 41st Congress, 1st Session, 42d Congress. 1870-71. 8vo pamph.

UNKNOWN. Worcester Directory for 1871. 1 vol. 8vo.

By Exchange.

ACADÉMIE IMPÉRIALE DES SCIENCES, BELLES-LETTRES ET ARTS DE BORDEAUX. Actes, 3e Série, 32e Année. 1870. 1er et 2e Trimestres. 8vo pamph.

ACADÉMIE ROYALE DES SCIENCES ARTS ET BELLES-LETTRES IN CAEN. Mémoires, 1868, 1869, 1870, 1871. 4 vols. 8vo.

ACADÉMIE ROYALE DES SCIENCES, DES LETTRES ET DES BEAUX-ARTS DE BELGIQUE. Annuaire, 1871. 16mo pamph. Bulletins, 2me. Ser. T. 29, 30, 31. 1870-71. 3 pamphs. 8vo. Observations des Phénomènes Périodiques pendant l'Année, 1867, 8, 9. 2 pamphlets, 4to.

AMERICAN PHILOSOPHICAL SOCIETY. Proceedings of. Vol. xii. No. 87. July-Dec., 1871. 8vo pamph.

BOORE, A. P. Notice sur un nouveau genre de Ténébrionides appartenant au Groupe des Adeliides par A. P. De Boore. 8vo pamph. Miscellaneous pamphlets, 4. BOSTON PUBLIC LIBRARY. Bulletin for Jan., 1872.

DIE PHYSIKALISCH-MEDICINISCHE SOCIETÄT IN ERLANGEN. Sitzungs-berichte, 3 Heft. Mai 1870 bis Aug. 1871. 8vo pamph.

PUBLISHERS. Gardener's Monthly. Gloucester Telegraph. Half Yearly Compendium of Medical Sciences. Hardwicke's Science Gossip. Haverhill Gazette. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Quaritch's Catalogue. Sailors' Magazine and Seamen's Friend. Salem Observer. Shoe and Leather Journal.

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 4.

SALEM, MASS., MARCH, 1872.

NO. 3.

One Dollar a Year in Advance. 10 Cents a Single Copy.

REGULAR MEETING, MONDAY, MARCH 4TH, 1872.

THE President in the chair. Records of preceding meeting read.

THE OLD CARVED CHAIR.

From a letter of E. W. Farley, Esq., of Newcastle, Me., recently received, we learn that the curious old carved oaken chair, which was given to the Historical Society, June 27, 1821, by Robert Brookhouse, of Salem, is a complete counterpart of the one in his possession, and as far as antiquity and style are concerned, these two chairs are perhaps unequalled by any to be found in New England. Mr. Brookhouse received this chair from the family of Major John Farley, of Newcastle, Me., a native of Ipswich, Mass. Mr. Brookhouse's first wife was a daughter of said Farley, and Mr. Farley's wife was Sarah Dennis of Ipswich. This chair was one of four pieces of furniture of similar wood and carvings belonging to said Sarah Dennis, and was taken to Newcastle on her removal there in 1772 or 1773 — consisting of two

arm chairs, alike in pattern, a tape loom and a chest now in the possession of Mrs. E. G. Perkins, of Salem, having upon it the date "1634;" and there is reliable traditional evidence of the age of said furniture corresponding with the year 1634, and that these articles were brought over from England by the first emigrant of the Dennis family of Ipswich.

A RELIC OF "YE OLDEN TIME."—A STONE MILL.

In form the mill is mortar like, about as large as a peck measure, with the furred stone fitting so as to make an effectual grinder. It is similar to the stone mills spoken of in the Bible, which the Jewish women used. It was presented by Mr. D. L. D. Balch, of Amesbury, accompanied by the following letter:—

AMESBURY, FEBRUARY 7, 1872.

To the Officers of the Essex Institute:—

GENTLEMEN:—In accordance with a purpose long entertained by me, I hereby offer for your acceptance the "Stone Mill" which was brought to this country by "Lieut. Francis Peabody," in the year 1635.

This "mill" has been preserved in the Peabody family from that date to the present time, mostly at Topfield. It was finally presented to my father, the late Israel Balch, M. D., some sixty years ago, by Jacob Peabody, and by him kept till his death in 1858.

It was my father's special request that this relic of "ye olden time" should be presented to your Institute, and it is not only a duty but a pleasure to comply with the same.

Trusting that this ancient memento of the ancestor of that honored benefactor, the late George Peabody, may be accepted and preserved through all coming time, I am

Your obedient servant, D. L. D. BALCH.

HOWARD STREET CHURCH.

Mr. GEORGE D. PHIPPEN presented a communication from Rev. C. C. Beaman, formerly of this city, on "The Closing History of the Branch or Howard Street Church in Salem." Referred to the committee on publications

for insertion in the "Historical Collections." At a meeting of the Institute, Monday evening, Jan. 20th, 1862, Rev. Mr. Beaman read an interesting historical sketch of this church, with brief notices of the several ministers who have successively officiated in that place. This paper was printed in the "Historical Collections of the Essex Institute," Vol. iii, page 272.

CLEVELAND'S JOURNALS.

Mr. A. C. Goodell, Jr., read a letter from Nehemiah Cleaveland, of Westport, Conn., tendering to the Institute some journals written by his grandfather, Rev. John Cleaveland, of Chebacco parish, in Ipswich. The thanks of the Institute were tendered to Mr. Cleaveland for his generous offer, and Mr. Goodell was requested to communicate the same.

The SECRETARY announced the following additional correspondence:—

From L. D. Gould, Boston Highlands, Feb. 23; S. A. Green, Boston, Feb. 28; B. H. Hall, Troy, N. Y., Feb. 27, Mch. 1; Francis Harrington, Boston, Feb. 23; John F. McCoy, New York, Feb. 17, 21; S. A. Nelson, Georgetown, Feb. 19, 29; John H. Sage, Hartford, Conn., March 1; W. Hudson Stephens, Lowville, N. Y., Feb. 29; A. Woodward, Franklin, Conn., Feb. 20.

The LIBRARIAN reported the following additions:—

By Donation.

BUTLER, HON. B. F., of Washington, D. C. Speech of Hon. Roscoe Conkling in U. S. senate, Feb. 19, 1872. 8vo pamph.

KIMBALL, JAMES. Proceedings of the Right Worthy Grand Lodge, I. O. O. F. of Mass. 1857, '8, '9, '70, '71. 9 nos. The World Almanac, 1868, '9, '70, '71, '72. Miscellaneous pamphlets. 10.

MANCHESTER PUBLIC LIBRARY. Eighteenth Annual Report of the Trustees, Dec. 31, 1870. 12mo pamph.

MANNING, ROBERT. Journal de l'Agriculture, Tome iv, 1869, 5 nos. Tome i, ii, iii, 1870. 17 nos. Der Farmers Freund, 1871.

PALFRAY, C. W. Miscellaneous pamphlets. 8.

PERLEY, EDWARD. Directory of St. Paul for 1863. 1 vol. 8vo.

STEPHENS, W. H. of Lowville, N. Y. Directory of Harrisburg for 1839. 1 vol.

STONE, EDWIN M. Thirtieth Annual Report of the Ministry at Large. Jan. 2, 1872. 8vo pamph.

SUMNER, HON. CHAS., of Washington, D. C. Department of Agriculture for 1870. 1 vol. svo. Washington, 1871.

By Exchange.

ENTOMOLOGICAL SOCIETY OF THE NETHERLANDS IN 'S GRAENHAGUE. Tijdschrift voor Entomologie. Tweede Serie Vijfde. Deel 1-6. Aflerering, 1869-70. Zesde Deel 1. Aflerering, 1871. 7 pamphlets. svo.

FLAX EXTENSION ASSOCIATION IN IRELAND. Third and Fourth Annual Reports of, for the Improvement of the Culture of Flax in Ireland, 1869-70. 2 pamph. 12mo. Instruction for the Culture and Preparation of Flax in Ireland. 12mo pamph.

GEOLOGICAL AND POLYTECHNIC SOCIETY OF WEST RIDING OF YORKSHIRE. Proceedings of, 1870. svo pamph. Leeds, 1871.

KÖNIGLIGA VETENSKAPSSOCIETETEN, UPSALA, SWEDEN. Nova Acta, Ser. III. Vol. vii. Fasc. I, II. 1869-70. 2 pamph. 4to. Upsalæ, 1869-70. Bulletin Météorologique Mensuel, Vol. ii. Nos. 1-12, 1869-70. Vol. iii. Nos. 1-6, 1870-71.

L'INSTITUTE ROYAL GRAND-DUCAL DE LUXEMBURG (CI-DEVANT SOCIÉTÉ DES SCIENCES NATURELLES). Publications, Tome xi.—Années 1869 et 1870. svo pamph.

NATURFORSCHENDE GESELLSCHAFT IN BAMBERG. Bericht. 1869-70. svo pamph. NATURFORSCHENDE GESELLSCHAFT IN BASEL. Verhandlungen, Theil 5. Heft 3. svo pamph.

NATURFORSCHENDE GESELLSCHAFT IN GÖRLITZ. Abhandlungen, Bd. xiv. 1871. svo. Görlitz, 1871.

NATURWISSENSCHAFTLICHE GESELLSCHAFT "ISIS" IN DRESDEN. Sitzungsberichte, 1871. Juli, Aug., Sept. svo pamph.

PHILOSOPHICAL AND LITERARY SOCIETY IN LEEDS. Annual Report, 1870-71. svo pamph. Leeds, 1871.

ROYAL SOCIETY OF LONDON. Proceedings of, Vol. xviii. Nos. 119-122, Vol. xix. 123-129. 11 pamphlets. svo.

SOCIÉTÉ D'AGRICULTURE, SCIENCES ET ARTS DE LA SARTHE. LE MANS. Bulletin, Tomes xi, xii, xiii. 1870, 1871.

SOCIÉTÉ D'ANTHROPOLOGIE IN PARIS. Bulletins, Tomes iv, v. 1869-70.

SOCIÉTÉ DE PHYSIQUE ET D'HISTOIRE NATURELLE IN GENÈVE. Mémoires, Vol. xxi. part I. 4to pamph. Table des Mémoires Tomes I à XX. 4to pamph.

SOCIÉTÉ ENTOMOLOGIQUE DE RUSSIE IN ST. PETERSBURG. Horæ Societatis Entomologicae Rossicae, Tome vii. No. 1. Tome vii. No. 2. 1871.

SOCIÉTÉ MALACOLOGIQUE DE BELGIQUE IN BRUXELLES. Annales, Tome v. 1870. svo pamph.

VEREIN ZUR VERBREITUNG NATURWISSENSCHAFTLICHER KENNTNISSE IN WIEN. Schriften, Band xi, Jahrg. 1870-71. 16mo pamph.

BIBLIOTHÈQUE UNIVERSELLE ET REVUE SUISSE. Archives des Sciences physiques et naturelles. Oct. 15, 1871. No. 166. svo pamph. 1871.

IOWA STATE HISTORICAL SOCIETY. Annals of, Jan., 1872. svo pamph.

NEW YORK GENEALOGICAL AND BIOGRAPHICAL SOCIETY. Record of, Jan., 1862. svo pamph.

RHODE ISLAND HISTORICAL SOCIETY. Roger Williams, a paper read before the Society, Nov. 8, 1871. By Thomas T. Stone. svo pamph.

PUBLISHERS. American Chemist. American Journal of Science and Arts. Canadian Journal. Gloucester Telegraph. Haverhill Gazette. Land and Water. Lawrence American. Little Giant. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Shoe and Leather Journal.

Mr. S. A. NELSON of Georgetown read the following communication on

THE METEOROLOGY OF MOUNT WASHINGTON.

The mountainous region of New Hampshire north of Lake Winnipiseogee, known as the White Mountains has a north and south extension of about sixty miles, and on a cross line is not far from thirty miles wide.

The several ranges are naturally divided into groups, as the Moosilauke group in the southwest, the Franconia region westerly, to the south the Pemigewasset Mountains, centrally the Mount Washington group, and to the north the Stratford Peaks, together with others of less importance.

The Mount Washington group has an area of not far from thirty miles long and fifteen wide and has a north-east and southwest course. Centrally in this range is Mount Washington, in latitude $44^{\circ}, 16', 25''$ and longitude $71^{\circ}, 16', 26''$, west from Greenwich. The altitude is 6,293 feet and it is the highest peak in the group by 500 feet, and the highest east of the Mississippi with the exception of Clingman's Peak in western North Carolina.

Prof. Edward Tuckerman marks out four regions on Mount Washington: First, the *lower forest*, where are found the hard wood species of the lowlands, with the white spruce and fir, forming a dense forest. Secondly, the *upper forest*, composed of black spruce, fir, Frazer's balsam fir, a mountain ash, with rarely the canoe and yellow birch. At four thousand feet altitude these trees become dwarfed and are only found above this height in a few sheltered localities on the southern side of the mountain. The plants in the third, or *sub-Alpine region*, correspond to like localities in mountain regions generally, and from a little below the summit, upward, is the *Alpine* region,

with many plants native to Labrador and Greenland. The change of climate from the base to the summit is equivalent to that of several degrees north.

In this paper I shall confine my remarks exclusively to the meteorological phenomena of the mountain. An extended inquiry would be of greater value, but it is impossible to more than briefly touch upon the several points under consideration. I do not propose to discuss theories so much as to present facts to show the advantages mountain stations offer over those less elevated.

Some of the highest authorities have held that the study of meteorology should begin from above. Among these are Biot and Poey. And why meteorologists should have been so long content to study the aspects of the weather within the narrow limits of the lower earth currents, it is hard to decide. It is true that in Europe similar observations to those made on Mount Washington have been maintained for a limited time, but never till the past year in this country, yet nowhere have they been deemed of much value.

When we look through the rifts of a low running S. E. scud, and see, at an altitude of less than a mile, an upper current of cirro-cumulus rapidly moving towards the northeast, or in a fair day, observe it progressing at the rate of fifty miles an hour, while at the surface the wind is not above ten miles—a desire to investigate the phenomenon is aroused, and we devise ways and means to accomplish this end.

Where shall we go but to some lofty mountain peak that rises to the altitude of the atmospheric current in which that stratum of cloud is drifting?

East of the meridian of 105° west from Greenwich, over the whole continent, north of the N. E. trades, there is an atmospheric current constantly flowing in a

northerly direction. It flows in a descending plane differing but slightly from that of the limit of perpetual snow. Its descent is known to be not far from 16,000 feet at the equator to very near the surface at the poles. Over this country its range is from about 3,000 to 12,000 feet and vertically it cannot be far from 6,000 to 8,000 feet.

It varies in direction and elevation with the changing seasons—runs lower in summer than winter—and varying on different parallels, it flows near the earth when no surface wind interferes. Over New England its course is nearly W. S. W. to E. N. E., but west of the Alleghany Mountains it is more southerly. Its elevation and direction also vary in the same latitude with the variations of the weather, and probably correspond with the increase and diminution of magnetic force.

This is the *counter-trade*, and comes to us from the South Atlantic Ocean. Within it form our storms. Its ameliorating influences are seen in the southerly storms of winter, in the gentle southwest gales of April and May. Opposed to this is the dry, northwest wind which sweeps down from the Arctic regions. Many maintain that this is a surface wind. So it is when it has driven itself under the counter-trade and fills the space between that higher current and the earth. But it becomes an intermediate one whenever an easterly wind prevails at the surface, and its place is between the surface wind and the southwesterly upper current of the counter-trade. Our records show that this frequently occurs.

It is not necessary to enlarge upon this, as it is no part of my purpose to combat theories, and I only allude to it at all, that it might be seen clearly wherein Mount Washington, or any isolated peak, is superior to stations less elevated, for the particular department of observations on ærial currents.

These advantages, at Mount Washington, we find in the elevation of more than a mile above sea-level, and that it so nearly reaches the line of perpetual snow, in the considerable height over the surrounding peaks; in the summit being usually above the lower surface winds and lower cloud stratum.

As it is, to a certain extent within the region of the higher upper currents, barometric, thermometric and hygrometric conditions obtain, which do not at lower stations, or in the same time and degree, and of value in connection with them in forecasting storms.

BAROMETRIC OBSERVATIONS.

It is well understood that changes in the velocity of the wind and amount of cloud, exercise a marked influence upon the barometer. These disturbing elements being in full force here, hence the sensitiveness of the instrument and its fluctuations, as well as its wide range. Its sensitiveness is best seen in a nearly calm day when clouds are drifting over; then the mercurial column will not rest for a moment, and yet the range for an hour may not be more than .002 to .004 of an inch. The fluctuations during a gale are very great, frequently from one half hour to another, half an inch or more. The range from December 1st, 1870, to May 14th, 1871, was 1.595 inches. The lowest reading corrected for temperature was 22.120 and the highest was 24.104. The first was during the great gale of December and the last towards the latter part of May. It has a wide range in the great gales, or hurricanes of winter, but not in the summer storms.

Almost hourly observations were taken from 11 A.M., January 22d, to 9.30 A.M. of the 23d. This was one of the three great gales. The range was 1.116. The long-

est and most severe storm of all occurred in February, commencing on the 4th. Observations from 7 A. M. of the 4th to the same hour on the 5th gave a range of 1.403. Other storms gave like results. On the 21st of May thunder showers prevailed over an extended area; but none passed over the mountain or very near. The barometer was depressed, owing more to the intensity of magnetic force than other causes as the weather was fine with us. The 22d was characteristic of the mountain. It was warm, clear and calm in the morning, with a terrific thunder storm at noon and wintry weather at night. At 11 A. M. the temperature was 66° —the highest during the summer with one or two exceptions—at 3 P. M. 26° . The barometric fluctuations were constantly going on early in the morning, falling 1.124 from 8 A. M. to noon. The oscillations of the barometer were in the same time as the discharge of electricity at the telegraph table; both in the afternoon of the 21st and on the 22d.

Humboldt has said, speaking of the horary variations of the barometer, that "no atmospheric circumstances—neither rain, nor fair weather, nor wind, nor tempest—affects the perfect regularity of these oscillations under the tropics; but they subsist alike at all times and in all seasons."

We cannot say this of Mount Washington. On the contrary, as the diurnal variation is governed by the rate of the wind and amount of cloud, it is only in calm, clear weather that it is at the usual hours, and, as it is seldom clear or calm, it may be said that here it does not conform to the general law. The tables of several stations in the New Hampshire Geological Report, compared with Mount Washington, show that on the mountain, there are times of high and low pressure which do not extend to the lower stations. These seem to be confined

to the upper atmosphere. But of the great atmospheric disturbances, covering one or more days' time, having a sweep of thousands of miles, we get, it appears from the record, the first barometric indications at lower stations. In a few instances the Mount Washington record gives earlier indications than the other stations; this is true of the December gale.

Preceding the gale of January 22d and 23d, the highest reading was on the 19th at each place, but it was some hours in advance of Mount Washington at Hanover, N. H., and Lunenburg, Vt., where the maximum obtained at 7 A. M.; at Gorham, N. H., 2 P. M., and at Mount Washington not until 4.57 P. M. At Lunenburg and Hanover, the minimum was on the 21st; at Mount Washington the 22d. The maximum after the gale abated was obtained at Hanover and Gorham the 25th; at Mount Washington and Lunenburg on the 26th at 7 A. M. Lunenburg has an elevation of 1,124 feet, and the climatic conditions more nearly correspond to those of Mount Washington than the other stations above mentioned.

THERMOMETER.

Although our observations in this department are not so complete as we could wish, yet they furnish much interesting and valuable matter, imperfect as they are. We had no spirit thermometer when we most needed it, and our mercurial instruments, though excellent, were too few in number. Dr. Kane says that "errors dependent on wind, sun and local radiation should be carefully guarded against." These remarks apply with much force to Mount Washington especially as regards radiation from clouds lying below the summit.

From partial records for the year from December, 1870, to November, 1871, inclusive, I think the mean tempera-

ture of the year may be not far from -5° Centigrade, equivalent to 23° Fahrenheit. It cannot possibly be so high as the zero isothermal line Centigrade. For the year, that of Montreal is 40° ; and the isothermal line of 45° passes a little south of Mount Washington, while the summit enjoys the climate of southern Greenland.

The highest observed temperature was 66° ; and the lowest reliable reading of the mercurial thermometer was -54° . On the 5th of February at 3 o'clock in the morning the reading was -59° . That it should read correctly at -54° may be questioned. The freezing point of mercury is not yet well established. Dr. Kane says that "thermometers correct at -40° and agreeing would show a difference of 15° or 20° at -60° ." So it was found by Sir James Ross at Leopold Harbor. Nor does Dr. Kane regard "the contraction of colored alcohol at very low temperatures, as sufficiently investigated to enable us to arrive at the cause or quantity of error." "The freezing point of mercury varied" with him "from between -38.5° and 41.5° ." Sir Edward Belcher obtained results where the mercury descended as low as -44° . Our thermometers were the Smithsonian standard in the winter, and later the standard instrument made by James Green, of New York—all excellent instruments. In the case under consideration the fall to -54° was gradual; but this is admitted to be no proof that the fall was not due to the contraction of the mercury after it became solid, as this frequently occurred in Dr. Kane's observatory. Of one thing I am fully assured; and it is, that there is much to be learned regarding the freezing point of mercury.

Nothing is more certain than the fact that the rise and fall of temperature, as a rule, is first obtained here. For instance, a low temperature, accompanying the easterly movement of the high, cold, upper wind current, is from

six to thirty-six hours earlier on Mount Washington than at lower stations. High and low temperatures are registered here, which we shall notice under winds, that do not descend to lower levels. On the other hand low temperatures are observed below when there is no change on the mountain. This we shall explain further on. So there are cold terms when the minimum is lower at some not distant stations than here.

As with the barometer so the thermometer has no fixed hours of daily maxima and minima. At Mount Washington there were seventeen days when the maximum was attained at 2 P.M., to ten at 7 A.M., and nine at 9 P.M., or when the readings were the same as at 2 P.M. At Montreal, twenty-nine at 2 P.M., to two at 7 A.M., and five at 9 P.M. At Hanover, twenty-three at 2 P.M. to four each at 7 A.M. and 9 P.M. In winter the changes are sudden and great; often in a half-hour from 5° to 25° and at any period of the twenty-four hours. The change of temperature from Sunday morning, February 5th at 3 o'clock, if we call it at that hour, -54° , to Tuesday noon following, when the thermometer indicated, in the sun, 62° , was 116° . Thirty to forty degrees difference in a day is of common occurrence.

HYGROMETRIC OBSERVATIONS

Were made with great care. During the winter we used wet and dry bulb thermometers hung side by side, and after the warm season opened the Mason Hygrometer. With all our care these froze and so were ruined. For that locality the ordinary wet and dry bulbs are most convenient at all times and in that moist climate require but little attention. Of these observations, Professor Cleveland Abbe, of the Signal Office, Washington, has said "the hygrometric observations from the mountain stations

are of the highest importance. . . . I manage daily to derive information which foretells the coming storm, and would do so far more accurately had we two other stations distant one to three hundred miles."

The hygrometer alone is a reliable instrument for determining the weather some time in advance of a change. On the mountain we could assure ourselves as to the weather for twelve to twenty-four hours; and after summer travel commenced our observations showed practical results daily; inasmuch as tourists stopping at the hotel availed themselves of the information thus gained in making their arrangements for the ensuing day.

It is the hygrometer upon which we depend more than the barometer. It is seldom that the readings of the wet and dry bulbs differ more than four or five degrees, quite rare that the difference is greater than ten. In this country as great a difference as thirty-five degrees has been recorded, and in India sixty degrees. I am led to believe that however unfavorable the climate is, in some respects, to health, the exemption from coughs and colds is due to this uniformly moist atmosphere.

THE WINDS.

The records show almost constant and exceedingly high velocities. Winds of from thirty to sixty miles an hour are the rule, light winds and calms the exception. In winter, ninety to one hundred miles is not uncommon, while in summer it seldom rises to ninety. The winter gales, which are westerly or northwest when attended by a low temperature, spend their fury in a gentle north wind bringing a moderation of temperature, quite frequently. This has been noticed by Dr. Hayes, by McClintock and Parry. I state the fact, but confess that I am unable to explain the phenomenon. Here, as in the Arctic zone,

there are high northerly winds excessively cold, and this seems to be the normal condition of things. On the mountain this gentle north wind will change suddenly, with a rising barometer, to south or southwest, which we can understand readily to be the downward movement of the southwest counter-trade descending to our level but not passing below it. A perfect calm is of the rarest occurrence in winter, for more than an hour or two. At Hanover for three months there were reported ninety-nine calms. Easterly winds are exceptional; out of two hundred and seventy observations, ten only were easterly. At Lunenburg seventy-three in the same time and Hanover forty-one. At Gorham, out of one hundred and forty-seven there were forty-one. This average holds nearly as good for the summer months. Three or four hundred feet greater elevation would place the summit above the course of the lowest surface winds. Neither do the northwest winds run much over a thousand feet higher. The altitude of 8,000 feet would undoubtedly give constant westerly winds.

From the direction and thickness of the cloud stratum, the height of the atmospheric current may be at all times determined. On the 23d of June at 7 A.M., the cloud enveloping the summit was unusually dense; the wind near the depot, southeast, in puffs, and calms, and nine miles per hour. On the roof of the hotel it was southwest and fifteen miles at least. An hour later the rain was pouring in torrents, and at the depot the wind had changed to southwest, thirteen miles an hour. These records show that gentle westerly winds may prevail on the summit, while below, at stations near and remote, the wind is easterly and tempestuous. They show, too, that the heavy gales of the winter were first felt on the mountain. The northwest wind sweeping southward, pushes up,

wedges itself under the current-trade, as it were (for atmospheric currents do not mingle, but stratify, the Huntonian theory to the contrary notwithstanding), gradually descending to the sea-level.

Of one summer high wind there is a partial report. June 8th at 5 p. m., the gale arose on the mountain reaching its height at 1 a. m., the 9th. At Bethlehem, N. H., fifteen miles west (1,800 feet above the level of the sea), there was a gentle breeze till 11 p. m., the 8th, but from that hour to 5 a. m., the 9th, the wind was high. At Bethlehem a cool, windy day followed, but on the mountain it was nearly calm and mild. Nor did it reach its highest point at Hanover till it had abated on Mount Washington.

CLOUDS.

It is obvious that the higher upper currents, especially of cirrus, which often floats at an elevation of 21,000 feet, will not present any very marked difference at the altitude of a little more than a mile. Generally it is during the transition stage into cirro-stratus or cirro-cumulus that we find this elevation advantageous. It becomes decidedly so when we would study the lower cloud-forms or observe the condensation of an approaching storm. As is well known, the higher upper current of cirrus is a westerly one, that it has a movement from west, or south of west, eastward. Passing into any sub-form the course may be from any point between S. S. W. and N. N. W. The lower currents of cumuli, which are rare in winter, and the stratus run low, seldom rising to the level of the summit. The stratus of winter is often extended over an area of several hundred square miles, and rarely has a greater average thickness, in the vicinity of the mountain, and probably not elsewhere, than 1,000 feet.

It is doubtful if, in this latitude, it ever exceeds 3,000

feet. Yet it is this thin stratum of cloud that gives the lowlands so many gloomy days in winter, while on the mountain there is no cloud from sunrise to sunset. It is on such days, when it is serene there and cloudy below, that we have a high temperature comparatively. This has been noticed in Europe. On the Brocken, in winter, under similar conditions, it is warmer than at Berlin.

In April there was the finest possible display of cumuli, an immense mass of cloud many thousand feet vertically and miles in extent. We may see the lower currents moving in different directions at the same time. Immediately around the mountains if they run low, they follow the line of the several ranges. It is not unusual at all seasons to see them on a S. E. course south of Mount Washington, and north of Mount Adams a S. W. one at the same time. Condensation may be going on at one point, in a contrary one, but a few miles distant, the cloud is re-dissolving. A distinguished French savant has said that he never saw, on the Alps, the formation of a cloud. A close observer, living on Mount Washington will have many opportunities to witness condensation over the summit. We did frequently, and Dr. Brewer of Boston has informed me that he once observed this on Mt. Washington.

[To be continued.]

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 4.

SALEM, MASS., APRIL, 1872.

NO. 4.

One Dollar a Year in Advance. 10 Cents a Single Copy.

REGULAR MEETING, MONDAY, MARCH 4TH, 1872.

[*Continued.*]

STORMS.

In observations on an approaching storm the elevation of 6,000 feet is important, inasmuch as the observer is above the lower strata, the "storm-seuil." Here he may note the changes in kind and relative position of the several cloud strata from the moment the storm is seen along the western horizon, two hundred miles distant, till it shall envelop the lofty peak of Mount Washington. The elevation of a storm moving east can be seen as far distant as New York City.

When condensation advances but little faster than the storm line, it is a more interesting study than when the condensation is going on for days, and over a wide extent of country at the same time. If rapid and with the storm, we notice at an immense height the "polar bands" of cirrus, lower, cirro-stratus, or cirro-cumulus. From

the first until it breaks on us, the progressive movement is traced on a north and south line—west of that line is the storm—east, fair weather; the upper current precedes somewhat the lower stratus, or “scud.” When the line is within a hundred miles we see this more plainly. The under current of stratus—a condensation in advance of the storm—is gradually spreading out on every side. Towards night the prominent landmarks are hidden from view. We can see that the lower stratus current is running under the advancing cloud. The cloud shuts down upon the mountain, all about us an easterly storm is raging, here it is a southwesterly or westerly one.

A storm presenting its southern side to us is not so interesting, as it condenses most rapidly on this side. On the summit there are sometimes southeasterly storms, but seldom one north of east. The great storm of October 4th, 1869, was from this direction, as was one short but severe gale and heavy rain of March last.

AURORA BOREALIS.

We witnessed many fine Auroras, but no new facts regarding them are on record. It is to be regretted that we were not prepared to observe to some extent, electrical phenomena, particularly in connection with auroral storms. The only peculiar features noticed were the apparent nearness to the earth of the auroral waves, as a rule; and three times, displays when the moon was past the first quarter. Our line, or our end of the line, gave us much trouble at such times. With the insulated wire of the mountain station three miles in length, there is afforded an opportunity for the study of electric currents in the terrestrial strata as well as atmospheric currents such as is seldom offered. The mountain is a gigantic insulator, no “ground” being obtainable on the summit.

ATMOSPHERIC ELECTRICITY.

I had an opportunity of observing in our line the effects of the thunder showers of the 21st of May. Being alone, I could not pay that attention to the several phenomena which I desired. We had a very sensitive compass which we used as a galvanometer. The oscillations of the needle were followed by a report of distant thunder. As the shower was fifteen or twenty miles distant, several seconds elapsed between the deviation of the needle and the report. The instruments were not "cut out" at first so that I obtained simultaneously with the oscillation of the needle, the click of the armature. I could now time the oscillations of the barometer. These I found to correspond to the oscillations of the needle in time and amount with the intensity of the current. I did not continue these experiments long from fear of injury to the instrument, and possibly injury to myself.

The next day there was a succession of showers, with one at noon on the summit continuing an hour, during which time the depot was struck five times. Early in the morning, I had taken the precaution to connect the rails by an iron bar, and this I think saved the building from damage. It is said that, since the road was completed, scarcely a day passes, when there are not electrical discharges on the mountain, but that many of these seek the track, as the best conductor, following it to some point near the river at the terminus. In view of the terrible results attending mountain thunder storms, to those so unfortunate as to encounter them, of which we have accounts of large parties perishing together by a single discharge of electric fire, we might be surprised to learn that no harm was ever done buildings or persons on Mount Washington, although the hotel has more than once been struck. Is

not this exemption due to the fact that the summit is insulated? and that the electric current seeks a more favorable path to the earth? I have noticed repeated discharges earthward, over Raymond's Cascade, in the Great Gulf in a single shower.

AQUEOUS PHENOMENA.

It frequently rains at a temperature of 28° and at times with even a lower reading. It is not uncommon for it to snow furiously when the reading is as high as 37° . The warm waves descending to the level of the summit bring rain even in January. Owing to the violence of the wind, measurements of rain and snow are practically useless. Although the fall of snow is very great, rarely more than two or three feet lie long. The quantity held in suspension during a gale is astonishing. From November to April it is, that of all high Alpine regions, a dry impalpable powder. A snow-flake mentioned in the Press telegram of January 8th as "new," which was the cause of considerable merriment to a certain class of public journals, may be described as pyramids of six sides base depressed with the sides corresponding to the exterior. It seems that Capt. Parry saw this form of snow-flake in one of his voyages and described it in his report.

Of the frost formations, very beautiful, the highest charm of winter mountain scenery, it is only necessary to remark, that the forms are due to certain conditions of the wind, and that it is built up by aggregations of minute specilia of ice, the condensation of vapor at an extremely low temperature. Doubtless electricity plays an important part in the work, as it is only with westerly winds that it forms.

At a higher temperature than that necessary for the frost formation, ice makes on the rocks and surface of the

snow, a solid blue ice. This disappears during high north-west gales as the cold, dry N. W. wind, full of positive electricity sweeps over the mountains. Late in December a singular ice formation was discovered. I have searched meteorological works for a description, but have not yet found whether it is known or not. It is a transparent ice on the surface of rocks: cellular in structure, the cells mainly hexagonal, some triangular and a few of an indefinable form. The cells averaged about .25 inches in depth by .15 to .20 of an inch in breadth.

To sum up results, we may add that mountain observatories are of the highest importance in the elucidation of climatological problems. The advantages secured are of direct, practical benefit in the daily forecasts of storms. Let the signal Office establish them, wherever practicable, throughout the country, and meteorology will be advanced shortly to the dignity of a science, a claim hardly compatible with the facts at the present time.

After Mr. Nelson had concluded the reading of his interesting communication, the following votes were unanimously adopted:—

Voted, That the Secretary be requested to tender to Hon. Judge Putnam of the Superior Court, the thanks of the Essex Institute for his interesting and instructive lecture delivered at our last meeting, giving a very vivid and graphic account of his visit to Ober-ammergau during the performance of the Passion Play in the summer of 1871.

Voted, That the Secretary be requested to transmit to Mr. S. A. Nelson of Georgetown the thanks of the Essex Institute for his interesting communication, giving a clear and succinct account of the results of the meteorological observations made during a residence on the top of Mount Washington in the winter of 1870-71.

Adjourned.

REGULAR MEETING, MONDAY, MARCH 18th, 1872.

THE PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence :—

From Pennsylvania Historical Society, Mch. 7; Charles C. Abbott, Trenton, N. J., Mch. 15; J. M. Calder, Salem, Mch. 11; Henry Cook, Boston, March 11; Robert Howell, Nichols, Tioga Co., N. Y., Feb. 7; E. M. Stone, Providence, R. I., Mch. 12; William H. Yeomans, Columbia, Conn., March 4.

The LIBRARIAN announced the following additions :—

By Donation.

ABBOTT, C. C., of Trenton, N. J. The Works of Thomas Chalkley. 1 vol. 8vo. Phila. 1719. Printed by B. Franklin & D. Hall.

AMERICAN PHILOLOGICAL ASSOCIATION. Proceedings of the Third Annual Session held at New Haven, Conn., July, 1871. 8vo pamph.

BOLLES, E. C. Address by Rob't B. Fairbairn in Hartford, Conn., July 12, 1871. 8vo pamph. Assay of Gold and Silver by Thomas M. Blosson. 12mo pamph.

BUTLER, R. F. M. C. Frelinghuysen's Speech in U. S. Sen., Feb. 25, 1872.

FOOTE, CALB. Files of several County papers for Jan., Feb., Mch., 1872.

GREEN, S. A., of Boston. Miscellaneous pamphlets, 11.

IVES, MRS. BENJ. H. True Christian Religion. 1 vol. 8vo. Boston, 1833. New Jerusalem Magazine. 2 vols. 8vo. Boston, 1833-4. Liberal Preacher. 1 vol. 8vo. Sermons by Rev. A. Baieroff. 1 vol. 8vo. Worcester, 1822. American Journal of Geology and Natural Science. 1831. 1 vol. 8vo. Analog of Religion. 1 vol. 8vo. Hartford, 1819. Bible News. 1 vol. 8vo. Boston, 1812. Worship and Love of God. 1 vol. 12mo. Naturalists' Pocket Book. 1 vol. 12mo. Unitarian Miscellany. 1 vol. 12mo. Insect Architecture. 1 vol. 16mo. Insect Transformation. 1 vol. 16mo. Formation of the Christian Character. 1 vol. 18mo. Times of the Saviour. 1 vol. 16mo. Christian Monitor. 1 vol. 18mo. Alphabet of Insects. 1 vol. 18mo. History of Insects. 1 vol. 16mo. New Church Doctrine. 1 vol. 12mo. The Pursuit of Knowledge. 1 vol. 12mo.

PACKARD, A. S., JR. The Development of *Echinus Polyphemus* by donor.

RICHES, W. S., of Columbus, Ohio. Cincinnati Directories for 1857-8. 2 vols. 8vo. Ohio State Register. 1857. 1 vol. 8vo. C. C. C. and L. R. R. Gazetteer. 1870-1. 1 vol. 8vo. Columbus Directories, 1855, 1857-8, 1859-70.

STATE BOARD OF HEALTH OF MASSACHUSETTS. Third Annual Report. Jan. 1872. 8vo pamph.

SUMNER, CHARLES, of U. S. Senate. Speech of, in U. S. Senate. Feb. 28, 1872.

U. S. LIBRARY OF CONGRESS. Catalogue of Books added to the Library of Congress in 1870. 1 vol. 16o. Congressional Directory, 12d Congress, 2d Session. 8vo pamph.

YEOMANS, WM. H., of Columbia, Conn. Public and Private Acts and Resolutions of Conn. for 1862-1861. Miscellaneous pamphlets, 18.

By Exchange.

AMERICAN ANTIQUARIAN SOCIETY, Worcester. Proceedings of, Oct. 21, 1871. No. 57. 8vo pamphl.

NEW JERSEY HISTORICAL SOCIETY. Proceedings of, Vol. II, No. 4. 1871.

NEW YORK LYCEUM OF NATURAL HISTORY. Annals of, Vol. X., Nos. 1-5.

PUBLISHERS. American Naturalist. Christian World. Gardner's Monthly. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Essex County Mercury. Lawrence American. Little Giant. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Sailors' Magazine and Seamen's Friend. Salem Observer. Shoe and Leather Journal. Sotheby's Catalogue. Western Lancet.

ESSEX COUNTY SPIDERS.

J. H. EMERTON exhibited his collection of spiders from the neighborhood of Salem and gave a general account of the classification of spiders, illustrated by sketches of some of our common species. The collection contained some eight hundred specimens, representing one hundred and sixty species of the following suborders:—

Orbitelarie (round web spiders)	29	species.
Retitelarie (net spiders)	33	“
Tubitelarie (tube spiders)	43	“
Citigradae (wolf spiders)	19	“
Saltigradae (jumping spiders)	20	“
Laterigradae (crab spiders)	16	“

The Orbitelarie were represented by the large black and yellow *Epeira riparia* Hentz, one of our most conspicuous spiders which can hardly escape the notice of any one who goes into the country in August, by *Epeira vulgaris*, the brown and gray spider, which spins round webs everywhere about our yards and barns, *Epeira trifolium*, one of our largest *Epeiras*, with round purple abdomen marked with white spots, and the less familiar species with thorny and odd shaped abdomens, *Epeira stellata* and *spinea*.

Among the Retitelarie were *Theridion vulgare* Hentz, perhaps the most common of all our house spiders whose webs occupy the corners of our rooms at all seasons, and

our common *Linyphia marmarata*, *L. communis*, and *L. costata*, conspicuous by their bright colors and curious and complicated webs.

Of the Tubitelariæ perhaps the most familiar was the common *Agelena neriæ* Hentz, whose webs are seen on dewy mornings almost covering the grass in our fields, each web sloping toward a tube in which the spider waits.

Among the Citigradæ were some specimens of *Lycosa Carolinensis* Hentz, the largest of the group, whose feet extend over three inches. One of these was caught in Saugus and another in Andover.

The Saltigradæ were represented by our little gray jumping spider, *Epiblemma faustum* Hentz, which is seen on walls in the sunshine running with equal facility backward, forward or sideways, and our large gray *Attus* which may be found at almost any season, in thick white cocoons under stones.

The Laterigradæ included the large white *Thomisus fatus* Hentz, which lives on flowers in gardens and is often brought into the house upon them, and the dingy gray *Thomisus vulgaris* Hentz, so common on fences, where it can hardly be distinguished from unpainted wood.

The collection was arranged in tube bottles which were pinned by the corks in trays.



REGULAR MEETING, MONDAY, APRIL 1ST, 1872.

THE President in the chair. Records of preceding meeting read.

THE SECRETARY announced the following additional correspondence :—

From Henry A. Breed, Lynn, Me., 20; J. J. H. Gregory, Marblehead, Me., 20; J. C. Hohnes, Detroit, Mich., March 18; Yeomans, William H., Columbia, Conn., March 22; Augsburg Naturhistorischer Verein, Dec. 4; Bern, Die Naturforschende Gesellschaft, Dec.; Boston Public Library, March 18, 22; Cincinnati Public Library, Me., 20, 27; Königs-berg, Physikalisch oeconomiche Gesellschaft, Dec. 10; Lisbonne, Academie Royale des Sciences, Oct. 5; Mans, Société d'Agriculture Sciences et Arts, Nov. 20; Neuchâtel, Société des Sciences Naturelles, Nov. 21; Wien, Kaiserliche Akademie, des Wissenschaften, Jan'y 7; Zurich, Naturforschende Gesellschaft, Aug. 18.

The LIBRARIAN reported the following additions :—

By Donation.

BOLLES, E. C. Address of J. A. Bolles, L.L.D., delivered at the fiftieth Annual Commencement of the National Medical College, Me., 7, 1872.

BROOKS, HENRY M. Tristram Shandy, 3 vols. 16mo. Vicar of Wakefield, 1 vol. 16mo. Management of the Tongue, 1 vol. 16mo. Poetical Works of Oliver Goldsmith, 1 vol. 16mo. Histoire de Charles XII. 1 vol. 16mo. Federal Calculator, 1 vol. 12mo. Triumphs of Temper, 1 vol. 16mo. Trials of a School Girl, 1 vol. 16mo. Handbook i Takling, 1 vol. 12mo. Prophecy of Dante, 1 vol. 16mo. Lara, 1 vol. 16mo. Miscellaneous pamphlets, 12.

BUTLER, B. F., of U. S. H. R. Carpenter's Speech in U. S. Sen., Feb. 29, 1872. Report of the Department of Agriculture for Feb., 1872. Harlan's Speech in U. S. Sen., Feb. 28, 1872.

CAROT, JOSEPH S. American Turf Register, 9 vols. 8vo. Scriptores Romani, 21 vols. 12mo. Southern Review, 5 vols. 8vo. New York Review, 8 vols. 8vo. Mass. Register & U. S. Calendar, 1808-1838, 35 vols. 16mo. Universal Magazine, 3 vols. 8vo. Henry's Chemistry, 2 vols. 12mo. Stewart on the Mind, 1 vol. 8vo. Southern Review, 5 nos. New York Review, 4 nos.

DEPARTMENT OF THE INTERIOR, Washington, D. C. Statistics of Population, Ninth Census, 1870. Tables I-VIII. 1 vol. 4to.

HOLMES, JOHN C., of Detroit, Mich. Twentieth Annual Report of the Board of Water Commissioners of Detroit for 1871.

LEVETTE, G. M., of Indianapolis, Ind. Geological Survey of Indiana by E. T. Cox, 1 vol. 8vo.

LITTLE, BROWN & Co., of Boston. Divinity of Christ, 1 vol. 16mo. Boston, 1872.

NFAL, THEO. A. Fleet's Almanack, 1792. 1 vol. 16mo. Postes de France, 1785. 1 vol. 16mo.

SECRETARY OF STATE OF MASS. Mass. Public Documents for 1870. 4 vols. 8vo. Acts and Resolves of Mass. passed in 1871. 1 vol. 8vo.

UNKNOWN. Annual Report of the Selectmen of Wenham. Year ending Feb. 16, 1872. Annual Report of the School Committee of Wenham. Year ending Me., 1872.

WOODMAN, CYRUS, of Cambridge. Records of the Proprietors of Narraganset Township, No. 1 (now the Town of Buxton), 1733-1811. 1 vol. 8vo. Privately printed.

By Exchange.

ARCHIV DER ANTHROPOLOGIE (Hrsg V. A. Ecker, L. Lindenschmit) in BRAUN-SCHWEIG, Band V. Heft 1. 4to pamph. 1871.

CROSSE ET FISCHER. Journal de Conchyliologie. 3e Série. Tome xi. No. 1.

INSTITUT NATIONAL GENEVOIS IN GENÈVE. Bulletin. No. 35. Vol. xvi. pp. 225-385. 1870.

KÖNIGLICH PHYSIKALISCH-ÖKONOMISCHE GESELLSCHAFT IN KÖNIGSBERG. Schriften, 1850-1870, inc. 16 pamphlets. 4to.

MASS. AGRICULTURAL COLLEGE, Amherst. Ninth Annual Report of the Trustees of. Jan., 1872.

MINNESOTA HISTORICAL SOCIETY. Annual Report of, 1871.

NATURFORSCHENDE GESELLSCHAFT IN BERN. Mittheilungen, No. 711-714, 1871.

NATURFORSCHENDE GESELLSCHAFT IN FREIBURG. Fortschritt herausgegeben zur Feier des fünfzigjährigen Jubiläums.

NATURFORSCHENDE GESELLSCHAFT IN ZÜRICH. Vierteljahrsschrift, Jahrg. xv. 1870. 4 pamphlets. 12mo.

NATURHISTORISCHER VEREIN IN AUGSBURG. Bericht, 1871.

PHYSIKALISCH-MEDICINISCHE GESELLSCHAFT IN WÜRZBURG. Verhandlungen Neue Folge, ii Band, 3 Heft.

SOCIÉTÉ D'ACCLIMATION. Bulletin Mensuel, Tome viii, 2me. Série Jan.-Nov., 1871. 6 pamphlets, 8vo. La Production Animale et Végétale, 8vo pamphl.

SOCIÉTÉ DES SCIENCES NATURELLES IN NEUCHÂTEL. Bulletin, Tome ix, 1er Cahier.

PUBLISHERS. American Chemist. Essex County Mercury. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Little Giant. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem Observer.

Mr. JAMES KIMBALL read a copy of a contract, which he had found among the county records, between an inhabitant of Salem and the town of Saybrook, Conn., the former to furnish the latter with a pair of colors for the military company of the town in 1675.

Thes presents witness y^t I, Samuel Crampton of Salem, doe ingage to furnish y^e towne of Saybrook, in y^e county of New London, with a pr of collures fitt for y^e company : of dubble sarsnet, red, with a white field to shew the red cross ; a flag staf and tassells sutable. To be sent the first opportunity after the first of May next, & upon y^e receipt whereof wee, whose names are underwritten, doe ingage to pay unto y^e sd Samuel Crampton, or his order, the sum of five pounds in pease & rye at three shillings per bushel, provided y^t y^e sd collures be of y^e sd kind, one & three quarters on y^e staff, two yds. & one quarter florish, with a blew ball in y^e sd collures, which sd payment is to be made at or before the first day of Oct. next insuing y^e date hearof, as witness our hands this 30th March, 1675.

WILLIAM PRATT,
ABRAHAM POST.

I underwritten doe bind myselfe & heires to pay or cause to be paid to Samuel Crampton of Salem or his assigns the just sum of four pounds & Six pence in pailles at 10s. a dozen, & half bushels at 20s. per dozen, to be delivered at Middleton at y^r landing place by Goodman Seaseage at or before the last of Sept. after y^e date herof.
March 27, 1675.

JOHN WILLOCK.

I underwritten bind myselfe & heires to pay Samuel Crampton of Salem six bushels & one half of indian corne to be delivered at Wethersfield landing place at or before,
&c. March 24, 1675.

SAMUEL BUTLER.

Nathaniel Graye also binds himself to pay the same as Samuel Butler.

Entered as a memorandum or caution per me Hillard Veren, Recorder, this 23 d. 8 mo., 1766.

Reg. Deeds, Book 4, Leaf 414.

The red cross with which this banner was to be provided called up the story of Endicott and the red cross as graphically related by Hawthorne in his "Twice Told Tales,"—the act of Endicott, in tearing the cross from the banner, showing his republican instinct was bold and defiant. The Massachusetts Records were also quoted, showing the action of the General Court then held at "New Towne," censuring Endicott for his act, and prohibiting him from holding office for a year. He protested against the action, and it was then voted that he be committed for contempt in protesting; but, upon an acknowledgment of his offence, he was dismissed. These records constitute the foundation of Hawthorne's graphic story. It was that spirit of liberty which was abroad in Massachusetts and which, from time to time, thus cropped out,

that caused, at the hands of the mother country, the imposition of those oaths of allegiance required of all judicial officers, sheriffs and other officials in the provincial period of our history. The following were read, as illustrations of the same:—

OATHS APPOINTED TO BE TAKEN INSTEAD OF THE OATHS OF
ALLEGIANCE AND SUPREMACY: AND DECLARATION.

I *A. B.* Do sincerely Promise and Swear, That I will be faithful and bear true Allegiance to His Majesty *KING GEORGE*.

So Help me GOD.

I *A. B.* Do Swear, That I do from my Heart, abhor, detest and abjure as Impious and Heretical, that damnable Doctrine and Position, that Princes Excommunicated, or deprived by the *Pope* or any Authority of the *See of Rome*, may be Deposed or Murdered by their Subjects, or any other whatsoever; And I do declare that no Foreign Prince, Person, Prelate, State or Potentate, hath or ought to have any Jurisdiction, Power, Superiority, Pre-eminence or Authority, Ecclesiastical or Spiritual, within the Realm of GREAT BRITAIN.

So Help me GOD.

I *A. B.* Do solemnly and sincerely in the presence of GOD, Profess, Testify and Declare, That I do believe that in the Sacrament of the LORDS SUPPER, there is not any Transubstantiation of the Elements of *Bread* and *Wine* into the *Body* and *Blood* of CHRIST, at or after the Consecration thereof by any Person whatsoever: And that the Invocation or Adoration of the Virgin *Mary*, or any other Saint, and the Sacrifice of the *Mass*, as they are now used in the Church of *Rome*, are Superstitious and Idolatrous. And I do solemnly in the Presence of GOD, Profess, Testify and Declare, That I do make this Declaration and every part thereof, in the plain and ordinary sense of the Words Read unto me, as they are com-

monly understood by *English Protestants*, without any Evasion, Equivocation or mental Reservation whatsoever; and without any Dispensation already granted me for this purpose by the *Pope* or any Authority or Person whatsoever; or without any Hope of any such Dispensation from any Authority or Person whatsoever, or without Thinking that I am or can be acquitted before GOD or Man, or absolved of this Declaration or any Part thereof, although the *Pope* or any other Person or Persons or Power whatsoever, should dispense with or annul the same, or declare that it was null and void from the beginning.

JOS. WOLCOT.

SALEM, y^e 26th of March, 1722.

Josiah Wolcot, Esq., personally appearing, took the several Oaths of Allegiance & Supremacy & subscribed the above Declaration with the Oath of Abjuration. And also was sworn to the due performance of his office of one of the Justices of his Majesty's Peise & Court of Comon Pleas for the County of Essex. Taken before us,

BENJ. LYNDE, }
JOHN TURNER, } of his Majesty's Council.

THEOPHILUS BURRILL.

Jurat the 21st day of May, 1722.

Before us, BENJ. LYNDE, }
JOHN TURNER, } of his Majesty's Council.

WM. GEDNEY.

SALEM, Essex, ss.

Jurat the 19th day of July, 1722.

COR. BENJ. LYNDE, }
JOHN TURNER, } of his Majesty's Council.

JOHN WILLIAMS.

ESSEX, ss, Salem, the 7th of Aug't, 1722.

Mr. John Williams personally appearing took the several Oaths & Declarations above, with the Oath of Abju-

ration & was also Sworn to his Office of Deputy Sheriff of the County of Essex.

Before us, BENJ. LYNDE, } of his Majesty's Council.
JOHN TURNER, }

I *A. B.* Do truly and sincerely Acknowledge, Profess, Testifie and Declare in my Conscience, before GOD and the World, That Our Sovereign Lord KING *GEORGE* is Lawful and Rightful KING of the Realm of *Great Britain* and of all other His Majesties Dominions and Countreies thereunto belonging; (And I do solemnly and sincerely Declare, That I do believe in my Conscience, that the Person pretended to be Prince of *Wales* during the Life of the Late King *James*, and since his decease pretending to be, and taking upon himself the Stile and Title of King of *England*, by the name of *James the Third*, hath not any Right or Title whatsoever to the Crown of the Realm of *Great Britain*, or any other the Dominions there-to belonging; And I do Renounce, Refuse and Abjure any Allegiance or Obedience to him.) And I do Swear, That I will bear Faith and true Allegiance to KING *GEORGE*, and Him will Defend to the utmost of my Power, against all Traiterous Conspiracies and Attempts whatsoever against His Person, Crown, or Dignity; And I will do my utmost endeavor to disclose or make known to His Majesty and His Successors, all Treasons and Traiterous Conspiracies which I shall know to be against Him or any of them: And I do faithfully promise to the utmost of my Power, to Support, Maintain and Defend the Limitation and Succession of the Crown (against him the said *James*, and all other Persons whatsoever) as the same (by an Act, Intituled, *An Act for the further Limitation of the Crown, and better Securing the Rights and Liberties of the Subject*) is and stands limited to the Princess *Sophia*, Electress and Dutchesse-Dowager of *Hanover*, and the Heirs of Her Body, being Protestants. And all these Things I do plainly and sincerely Acknowledge and Swear, according to these express words by me Spoken, and according to the Plain and Common Sense and Understanding of the

same Words, without any Equivocation, Mental Evasion, or Secret Reservation whatsoever. And I do make this Recognition, Acknowledgment, Abjuration, Renunciation and Promise, Heartily, Willingly and Truly, upon the true Faith of a Christian.

So Help me G O D.

JOS. WOLCOT.

Capt. the 26 : of March, 1722.

Cor. BENJ. LYNDE, } of his Majesty's Council.
JOHN TURNER, }

THEOPHILUS BURRILL.

Jurat the 21th day of May, 1722.

Before us, BENJ. LYNDE, } of his Majesty's Council.
JOHN TURNER, }

WM. GEDNEY.

Essex, ss, Salem, 19th of July, 1722.

Jurat, Cor.

BENJ. LYNDE, } of his Majesty's Council.
JOHN TURNER, }

JOHN WILLIAMS.

Essex, ss, Salem, the 7th of Aug't, 1722.

Mr. John Williams took the above Oath before us,

BENJ. LYNDE, } of his Majesty's Council.
JOHN TURNER, }

Mr. F. W. PUTNAM read a communication from Commodore B. F. Sands of the United States Naval Observatory requesting the several scientific societies to memorialize congress for an appropriation to defray the expenses for a due observation of the Transit of Venus in December, 1874.

Referred to a committee consisting of Messrs. Kimball, Upham, and the chair to report at the next meeting.

Adj.

REGULAR MEETING, MONDAY, APRIL 15, 1872.

PRESIDENT in the chair. Records read.

The SECRETARY announced the following correspondence:—

From George Derby, Boston, April 3; J. Munsell, Albany, April 6; D. Van Nostrand, New York, April 8; Baltimore, Peabody Institute, April 4; Boston Public Library, April 2; Buffalo Historical Society, April 3; Cincinnati Public Library, April 3, 4; Minnesota Historical Society, April 9; New Jersey Historical Society, March 30; New York Lyceum of Natural History, April 8; Ohio Historical and Philosophical Society, April 5.

The LIBRARIAN reported the following additions:—

By Donation.

BOARD OF PUBLIC CHARITIES, Phila., Penn. Second Annual Report, 1871. 1 vol. 8vo.

DEPARTMENT OF THE INTERIOR, Washington, D. C. Statistics of Wealth, Taxation and Public Indebtedness. 4to pamph. 1871.

FOSTER, JOHN, Boston. History of the Foster Family, of Ipswich. 1 vol. 8vo.

GARFIELD, J. A., M. C. Smithsonian Report, 1870. 1 vol. 8vo.

MUNSELL, JOEL, of Albany, N. Y. Chips for the Chimney Corner. 1 vol. 6mo. Miscellaneous pamphlets, 28.

OFFICE OF THE CHIEF OF ENGINEERS, U. S. A. Report of the Chief of Engineers, 1871. 1 vol. 8vo.

PARKER, WM. B. A Golden Chain, or the Description of Theologie. 1 vol. 8to London. 1835.

PEABODY LIBRARY, of Georgetown, Mass. Report of the Trustees, 1872.

PERRY, Rev. W. S., of Geneva, N. Y. Papers relating to the History of the Church of Pennsylvania, 180-1778. 1 vol. 8to. Privately printed.

SHEPPARD, JOHN H., Boston. Sketch of Commodore Sam'l Tucker and Description of the New Masonic Temple in Boston. 8vo pamph. 1872.

By Exchange.

ALBANY INSTITUTE. Proceedings of the. Vol. i, Pt. II. 1871.

BOSTON SOCIETY OF NATURAL HISTORY. Proceeding. Vol. xiv, sigs. 8-11.

HISTORICAL AND PHILOSOPHICAL SOCIETY OF OHIO. Journal. Vol. i, Pt. I. 1872.

NEW ENGLAND HISTORICAL AND GENEALOGICAL SOCIETY. Register and Journal for April, 1872.

NEW JERSEY HISTORICAL SOCIETY. Collections of. Vol. 7. 1 vol. 8vo. 1872.

NEW YORK GENEALOGICAL AND BIOGRAPHICAL SOCIETY. Genealogical and Biographical Record for April, 1872.

VERMONT STATE LIBRARY. Transactions of the Vermont Dairymen's Association, 1870-1.

PUBLISHERS. American Naturalist. Christian World. Gardener's Monthly. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Land and Water. Lawrence American. Little Giant. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem Observer.

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 4.

SALEM, MASS., MAY, 1872.

No. 5.

One Dollar a Year in Advance. 10 Cents a Single Copy.

REGULAR MEETING, MONDAY, APRIL 15, 1872.

[*Continued.*]

ON THE TRANSIT OF VENUS.

THE committee to whom was referred the resolution offered by Mr. F. W. Putnam at the last meeting of the Institute to memorialize Congress for an appropriation to defray the necessary expenses of observations of the approaching Transit of Venus

REPORT

That this subject has received the favorable consideration of several of the European governments, and preparations are being made by them for a thorough observation of the coming Transit of Venus, which will occur on December 8, 1874. In Russia, whose territory presents many favorable points for observation of the phenomenon, a committee, organized by Prof. Strüve, has had under consideration, during the past two years, the establishment of a chain of observers at positions one hundred miles apart along the region between Kamtschatka and

the Black Sea. The principal astronomers of Germany have held two conferences, each of several days' duration, which have resulted in a decision to furnish four stations for heliometric observation of the planet during its transit; one of these will be in Japan or China, and the others probably at Mauritius, Kerguelen's and Auckland Islands, and some of these will also be equipped for photographic observations. A French commission on the subject sat before the war, and reported to the Bureau des Longitudes that it was desirable for their government to provide for observing stations at Saint Paul's Islands and Amsterdam, Yokohama, Tahiti, Noumea, Mascate and Suez. Lately the Academy of Sciences has applied to the Government for the requisite funds. The British preparations are probably more advanced than those of any other country. The astronomer royal first called attention to the transit in 1857, and again in 1864. In 1868 he began to shape definite plans, selected the observing stations, and opened communications with the Government upon the financial requirements of the undertaking.

In view of these facts it is desirable that the United States Congress, though having appointed a commission at its last session, should at an early day make provision that will enable this commission to place a corps of observers in the field, provided with suitable apparatus and abundant means to conduct in a proper manner the observations of this approaching transit of Venus.

It will require time to arrange the apparatus, some of which will undoubtedly have to be made for the occasion—conferences will be essential with the observers of other countries, so that the plans of observation may be in strict harmony with each other, and, before the positions are finally decided upon, the intentions of the other nations should be fully known.

The *personnel* of the various observing expeditions should be agreed upon and commence practice with the time and position instruments. At Woolwich a temporary observatory has been fitted up, with the object of forming a more accessible school of observation. At the

several positions the erection of temporary observatories will be required, and a residence of the observers for three or four months to ascertain the absolute local time of the phenomenon and the exact longitude. This accordingly increases the extent of preparation.

Your committee would recommend the adoption of the following memorial and resolves :—

To the Honorable Senate and House of Representatives in Congress assembled :

The Essex Institute, an organization located at Salem, in the State of Massachusetts, for the promotion of Science, Literature and the Arts, respectfully memorialize your Honorable Bodies to take into consideration the propriety of granting a suitable appropriation to enable the scientific corps connected with the Executive Branch of the Government, and such others as may be associated with them, to make a thorough and accurate observation of the approaching transit of Venus.

Resolved, That the President and Secretary be authorized to sign the above memorial in behalf of the Essex Institute and that the Secretary transmit the same, with a certified copy of the doings of the Institute in relation thereto, to the Hon. B. F. Butler, the Representative in Congress from this district, with a request to present the same and to use all proper means to secure a favorable consideration of this measure.

H. WHEATLAND,	} Committee.
JAMES KIMBALL,	
W. P. UPHAM,	

ANCIENT TOPOGRAPHY OF SALEM.

JAMES KIMBALL, Esq., exhibited a map showing the old topography of Salem and presented the results of a careful examination of the early records of the county of Essex, for the purpose of gleanings a class of historical

facts hitherto neglected, and tending to give us a clearer insight into the early history of the first settlement at Salem, more especially in reference to the ancient topography of its territory, its development and adaptation to the wants and uses of civilized life.

Mr. Kimball has devoted considerable time in gathering up and placing upon record these fragmentary portions of our history, which, as each generation passes away, will become more and more obscure and difficult to be determined, unless they are rendered more enduring than the imperfect and decaying records of those early days, or the failing memories of those aged persons who are fast passing from our midst. These efforts to preserve a valuable department of our local history will undoubtedly induce others to continue the examination, so that, in the future, we may be able to present to the historian materials for a full and perfect history of Salem, that shall be a worthy tribute to the memories of the early settlers of *Naumkeke*.

This communication, one of a series which Mr. Kimball has in preparation, elucidating portions of our local history, was referred to the committee on Publications to be printed in the "Historical Collections."

A committee, consisting of Messrs. James Kimball, W. P. Upham, Caleb Cooke, Wm. Neilson and John Robinson, was appointed to nominate a list of officers to be balloted for, at the annual meeting.

Edward Dean of Salem was elected a resident member.

REGULAR MEETING, MONDAY, MAY 6TH, 1872.

THE PRESIDENT in the chair. Records of the preceding meeting read.

THE SECRETARY announced the following correspondence :—

From B. F. Butler, Washington, April 28; R. Manning Chipman, Lisbon, Conn., April 29; C. H. Goss, Salem, April 18; J. D. W. French, Boston, April 24; J. Munsell, Albany, N. Y., April 23, 30; The Nation, New York, April 18; L. R. Stone, Newton, April; American Geographical Society, April 9, 19; Cincinnati Public Library, April 19, 21; St. Petersburg, Société Entomologie de Russie, Feb. 21; Washington, Smithsonian Institution, April 24, 29.

THE LIBRARIAN reported the following additions :—

By Donation.

- BOLLES, E. C. Miscellaneous pamphlets, 10.
 BUTLER, B. F., M. C. Moore's Speech in U. S. H. R., April 6, 1872. Sawyer's speech in U. S. Sen., April 17, 1872. Sargent's Speech in U. S. H. R., April 18, 1872.
 FORGER, WM. C., of Hingham, Mass. Miscellaneous Town Reports, 6.
 FOOTE, CALF. Files of several County papers for Feb., March, April, 1872.
 GORD, JOHN H., of Topsfield. *Crusii Moral*, 1 vol., 12mo., Leipzig, 1711. *Tribune Almanacs*, 8 nos. *American Almanacs*, 4 nos. *Les Comédies de Terence*, 1 vol., 8mo., Halle, 1720.
 HAYDEN, DR. F. V. List of Elevations and Distances west of the Mississippi River, 12mo. pamph.
 KNIGHT, B. Locke's Essays, 1 vol., 8vo. Campbell on Rhetoric, 2 vols., 8vo. Cousin's Psychology, 1 vol., 12 mo. Macy's Exploration of the Red River, 1 vol., 8vo. Insects Injurious to Vegetation, 1 vol., 8vo. Report of the President and Directors of the Pittsburg & Boston Mining Company, Jan., 1872, 1 vol., 12mo. Report of the Superintendent of the U. S. Coast Survey for 1853, 1 vol., 4to.
 LEE, JOHN C. Commercial Bulletin, March 30, April 13, 20, May 1, 1872.
 MANNING, ROBERT. Missionary Herald, 128 nos. Home Missionary Journal, 41 nos. New England Farmers and Gardeners' Journal, 28 nos.
 PALFRAY, C. W. Miscellaneous pamphlets, 10.
 PEABODY, MRS. FRANCIS. Journal of the American Unitarian Association, 57 nos. Every Saturday, 18 nos. Miscellaneous pamphlets, 27.
 PERRY, REV. W. S., of Geneva, N. Y. Miscellaneous pamphlets, 6.
 STONE, HENRY, Washington, D. C. Laws of Philadelphia, 1 vol., 8vo., Phila., 1830. Laws and Ordinances of Boston, 1853, 1 vol., 8vo. Ordinances of Baltimore, 1858, 1 vol., 8vo. Corporation Ordinances of New York, 1859, 1 vol., 8vo. Statute Laws of Louisville, 1857, 1 vol., 8vo. Revised Charter of Buffalo, 1856, 1 vol., 8vo. Laws and Ordinances of Cincinnati, 1859, 1 vol., 8vo. Acts of Tennessee, 1865, 1865-6, 1867-8, 1868-9, 4 vols., 8vo. Senate Journal of Tennessee, 1865-6, 1868-9, 2 vols., 8vo. House Journal, 1865, 1868-9, 2 vols., 8vo. Journal of the Assembly of Newfmdland, 1868, 1 vol., 4to. Laws of North Carolina and Tennessee, 1859, 1 vol., 12mo. Laws of Nashville, 1869, 1865, 2 vols., 12mo. Ordinances of Richmond, 1859

1 vol. 12mo. Nashville Directories 1855-6, 1857, 1859, 3 vols. 12mo. 1865, 1896, 1897, 1898, 1899, 5 vols. 8vo. Political Text Book, 1890, 1 vol. 8vo. American Museum, 1 vol. 8vo. Directory of New York, 1866, 1 vol. 8vo. Memoir of H. L. White, 1 vol. 8vo. Pitkin on Commerce, 1 vol. 12mo. Directories of Cities in the West and South, 1897-8, 1 vol. 4to. History of England, 1 vol. 8vo. Biography of Sam'l Lewis, 1 vol. 12mo. The Heavenly Pathway, 1 vol. 12mo. How to get a Farm, 1 vol. 12mo. Ten Acres Enough, 1 vol. 12mo. Bayonet Exercises for the Army, 1 vol. 12mo. Genealogy of the Mudge Family, 1638-1868, 1 vol. 8vo. Constitutional Convention, 1 vol. 8vo. Bankers' Magazine, 1851-2, 1 vol. 8vo. Smithsonian Reports, 1865, 1886, 2 vols. 8vo. Patent Office Reports, 1851-2, 1865, 2 vols. 8vo. Department of Agriculture, 1897, 1 vol. 8vo. Memphis Riots, 1896, 1 vol. 8vo. Miscellaneous pamphlets, 50.

SUMNER CHAS., of U. S. S. Two Protests of C. Sumner, Mch. 26, 27, 1872, 8vo.

By Exchange.

CINCINNATI PUBLIC LIBRARY. Geological Survey of Ohio for 1870, 1 vol. 8vo.

HISTORICAL SOCIETY OF PENNSYLVANIA. Discourse on the Inauguration of the New Hall, Mch. 11, 1872, by John W. Wallace, 8vo pamph.

PUBLISHERS. American Naturalist, Canadian Naturalist, Essex County Mercury, Gloucester Telegraph, Haverhill Gazette, Ipswich Chronicle, Land & Water, Lawrence American, Little Giant, Lynn Reporter, Lynn Transcript, Medical and Surgical Reporter, Nation, Nature, Pavilion, Peabody Press, Quaritch's Catalogue, Salem Observer, Western Lancet.

ANCESTRY OF SUSANNAH INGERSOLL.

The PRESIDENT read extracts from a manuscript sermon of the Rev. Dr. William Bentley of the East Church, Salem, which was delivered in December, 1811, on the occasion of the death of Mrs. Susannah Ingersoll, presenting a very graphic yet brief notice of the ancestry of the deceased in the line of descent from Richard Hollingsworth, one of the primitive settlers,—son William Hollingsworth, daughter Mary, the wife of Philip English, daughter Susannah, who married John Touzell, daughter Susannah, the wife of John Hathorne and mother of the subject of this notice. For a more extended account see "Hist. Coll. of Essex Institute," Vol. xi, page 228.

THE FAIRFAX AND HATHORNE HOUSE.

Reference was made by the President to the old house on the corner of Essex and Cambridge streets, in process of being taken down to erect on its site a more elegant structure. The original part of this house was built about

1685 by Benjamin Marston, the land having been purchased, some five years previous, of Jonathan Neale, who received it by inheritance, being an heir to the estate of Francis Lawes.*

Mr. Marston sold the estate, Feb. 24, 1701-2, to James Menzies,† formerly of Boston, then of Salem, who afterwards conveyed it to Philip English, and Philip English, July 25, 1724, to his daughter Susannah, the wife of John Touzell;‡ and from her it passed to her daughter Mary, the wife of William Hathorne, and for many years it was in the possession of that family, and known as the Hathorne House. The original part is about fifteen feet from the street. Additions have been made from time to time,—first, a two story store on the western part of the front, and afterwards, within the remembrance of several now living, that on the eastern part, three stories in height: at the same time the first addition was made of the same height. In the taking down of this interesting relic of the olden times, the various alterations and additions were traced from the original with its projecting second story, and lean-to in the rear, to the building as we last beheld it. With this, as with many of our old houses, interesting associations are connected. In this house§ lived William Fairfax, during his residence in

* See Essex Reg. Deeds, Book 12, fol. 253.

† See Essex Reg. Deeds, Book 15, fol. 51.

‡ See Bulletin of Essex Institute, Vol. 1, page 75. Essex Reg. Deeds, Book 5, fol. 283.

§ The following deposition from the manuscripts on file in the Library of the Institute confirms this tradition:—

"The Deposition of Christian Swasey, formerly Christian Legroee who Saith That about five years ago she Lived with Capt. John Touzell and Susanna his wife in the House Mr. Fairfax now dwells in in Salem, and that Mr. Phillip English, the Father of the said Susannah Then dwelt with Them in said House, and That She Then & There att Diverse Times heard the said Phillip English Say to his Daughter Susannah Touzell I give you all my Household goods and att Several Times when he said So He also bid Her fetch it up Every Thing from his House to Her House, To which She Replied She had not House Room Enough to Hold it and

Salem as collector of the port. William Fairfax, son of Henry Fairfax and grandson of Henry, the fourth Lord Fairfax, was born in 1691. He served in the British army, and was stationed for a time at St. Helena, and subsequently at the Bahamas, where he married Sarah, daughter of Major Walker, and was appointed Chief Justice of the Island. About the year 1725, on account of the unhealthiness of the climate, he removed to New England, having received the appointment of collector of customs of this port. In 1731 his wife died, leaving him four children, one of whom, Anne, born in Salem, married Lawrence Washington and afterwards George Lee. William Fairfax subsequently married Deborah Clark, daughter of Francis and Deborah (Gedney) Clark, of Salem. In 1734 he accepted the offer, to be the superintendent of the estates, of his cousin Thomas, the sixth Lord Fairfax, who had become the proprietor of the northern neck of Virginia, through his mother, who was Catherine, daughter of Lord Culpepper. He soon after removed from Salem, and at first took up his residence in Westmoreland County, but subsequently removed to a plantation called Belvoir, fourteen miles below Alexandria. He was collector of his majesty's customs for the South Potomac, and for some time President of the Council of Virginia. He died Sept. 3, 1757, aged sixty-

That about four years since They all removed Down to the House where They now Live, and That she often Times since has heard the said English Say He had Given all his Household Goods to his Daughter Touzell for her and her Children.
The Mark.

CHRISTIAN N. SWASEY.

Essex, ss. Salem, Aug. 2, 1732.

Then Christian Swasey made oath to the truth of the foregoing Deposition (Philip English, jun., and Wm. Browne being present at the Caption who objected that their Father Mr. Phillip English Sen. hath not for these several years past been of a sound and Disposing mind) and this evidence is Taken to be in Perpetuum rei memoriam.

BENJ. LYNDE, }
BENJ. LYNDE, Jun. } Justice of Quorum unus."

five years. Of several children by the second marriage, Bryan became afterwards the eighth Lord Fairfax; William died at Quebec in 1759, a lieutenant in the British army; and Hannah married Warner Washington, a nephew of General Washington.

THE RATTLE OF THE RATTLESNAKE.

Mr. F. W. PUTNAM gave a description of the structure of the horny appendage to the tail of many snakes, especially developed in the genus of Rattlesnakes, and controverted the idea of natural selection having anything to do with its peculiar development. He also thought that the supposition that the rattle was a benefit to the snake, as a means of enticing birds, by its sound imitating that made by the Cicada, as suggested by a writer in a late number of the "Naturalist," could not be accepted. The Cicada was not a ground insect, and was comparatively rare, even among the trees, in such localities as were most frequented by the rattlesnake. Secondly, the sound made by the snake was very slight under ordinary circumstances, and the rattle was not sounded to any extent unless the snake was disturbed by some cause. His own observations on these snakes, in their natural habitat, led him to believe that it was not at all their nature to set up a rattling for the sake of enticing birds to them, but that they would slowly and cautiously approach their victim, or else lie in wait ready to give the fatal spring upon anything that came near. He believed that the rattle was in reality a detriment to the snake, except in so far as it served to call the sexes together which, from the unsocial habits of the species, he thought was most likely its true function.

ANNUAL MEETING, WEDNESDAY, MAY 8TH, 1872.

ACCORDING to the notification, the meeting was held at 3 P. M. The President in the chair. Records read.

The annual reports of the officers and of the curators were read and accepted, and from them the accompanying

RETROSPECT FOR THE YEAR,

exhibiting a satisfactory condition of affairs and a gradual development of the plans and objects of the Institute, has been compiled.

Members. Changes occur in the list of members—by the addition of new names and the withdrawal of some by resignation, removal from the county, or by death. In this connection, notices of three of our associates, who have deceased within the year, are inserted.

W. H. A. Putnam, son of Eben and Elizabeth (Appleton) Putnam, died at Salem, Aug. 30th, 1871, in the thirty-ninth year of his age. From the age of fourteen until the year preceding his death he had led a sailor's life, making many voyages to the East Indies, Europe, Australia, and the Pacific coast of America, as master or factor. During these voyages he collected, very extensively, specimens in all departments of zoology, which have greatly enriched the museums at Salem and Cambridge.

J. Willard Peele, son of Willard and Margaret (Appleton) Peele, died at his seaside residence in Beverly, Sept. 29th, 1871, aged sixty-seven years. In early life he went to Manila and established the house of Peele, Hubbell & Co., where he resided many years. He returned to this country about 1845, and has since resided in Salem, except during the last three or four years in Boston.

Benjamin Cox, son of Benjamin and Sarah (Smith) Cox, born in Salem, Jan. 9th, 1806, graduated at Harvard College in 1826, studied medicine with Dr. A. L. Peirson and after receiving the degree of M. D., established himself in his native city, where he obtained a large practice, winning the attachment of those to whom he ministered by his suavity of manners, genial disposition, and skill in his profession. Though always interested in passing events, he never mingled much in public life outside the duties of his profession. He died Nov. 30th, 1871.

The meetings have been continued as usual. Three FIELD MEETINGS have been held, at Beverly, East Gloucester, and Rockville in Peabody. At the meeting in Beverly, the Wenham Pond and City Water Works were visited and many kind attentions were extended by the Superintendent and his assistants. The *cyclone* or *tornado*, which passed over the pond and extended through a part of Wenham on the Sunday preceding, was the subject of remarks from Mr. A. W. Dodge, and the results of his observations, with the statement of Mr. D. H. Johnson, have been printed in the BULLETIN.

At the meeting in East Gloucester the citizens of the place were very attentive, especially the Rev. Mr. Gannett, the pastor of the church in which the meeting was held: who kindly, at our suggestion, prepared a very interesting history of the Baptist society in that place, which has been printed in the BULLETIN. Messrs. Bolles, Johnson, Phippen, Emerton and others made extended remarks suggested by the various specimens collected during the forenoon rambles.

It was deemed proper that meetings should occasionally be held in the vicinity of Ship Rock, Peabody, so that the members of the Institute might have an opportunity

to visit this remarkable boulder, which, with an acre of land adjacent, is the property of the Institute ; accordingly, one was held on Wednesday, August 2d.

A cordial invitation was received to hold a meeting at Rowley during the month of September, but owing to peculiar and unusual circumstances it was deemed advisable to postpone to another season.

A special meeting was held on the evening of Sept. 5th to listen to the reading, by Judge Lord, of his memoir on the life and character of Mr. Huntington, ex-President of the Institute. This paper has been printed in the eleventh volume of the "Historical Collections" and copies have been also struck off in a separate form. The address was listened to with intense interest and was a faithful and correct delineation of Mr. Huntington's character.

Evening meetings have been held on the first and third Monday evenings, except during the months of June, July, August and September. The meeting on Monday, Oct. 16th, was devoted principally to remarks upon the great loss which our sister institutions, the Chicago Historical Society and the Chicago Academy of Sciences, had sustained by the great conflagration that had devastated so large a portion of Chicago on the 8th, 9th and 10th of October, and in the destruction of their entire libraries and collections. Resolutions of sympathy and proffers of aid were passed. A brief history of these Institutions was presented, with some account of their condition when visited by several members of the Institute in the month of August preceding.

Papers or lectures have been communicated, by Dr. A. H. Johnson, on some Mementos from the Franco-German War ; W. H. Foster, on Reminiscences of the Salem and Boston Stage Company ; Mr. F. W. Putnam, on the

Ancient Fortifications on the Wabash River, Indiana, and on the Mammoth Cave of Kentucky and its Inhabitants; A. C. Goodell, Jr., a sketch of the Legislation of Mass., the Provincial Period, and an account of the Puritan Holidays; Rev. E. S. Atwood, on the Beginnings and Growth of Language; Dr. A. S. Packard, on Insects Injurious to Vegetation noticed in this vicinity the past season; J. J. H. Gregory, Esq., of Marblehead, two lectures on the Result of his Observations during a trip by rail to California, his visit to Salt Lake City, Yosemite Valley, the Great Trees, etc.; Hon. J. P. Putnam of the Superior Court, a very interesting and graphic account of the "Passion Play" at Ober-ammergau, which he witnessed in the summer of 1871; Mr. S. A. Nelson, of Georgetown, on the Meteorology of the White Mountains; James Kimball, Esq., some account of the Judicial Oaths in the Colonial Days in the interest of loyalty; also, an interesting sketch of the Ancient Topography of Salem. Mr. James H. Emerton exhibited his Collection of Spiders and explained the system of classification and other interesting facts in their natural history. From others, many short communications and brief remarks were presented. The attendance on some of these occasions was very large, and the subjects under discussion elicited a great degree of interest and attention.

It may be deemed appropriate in this connection to allude to the lecture on Mt. Washington illustrated by the camera, delivered at the rooms by Mr. S. A. Nelson, and also a series of five lectures, on the Microscope and what it shows us, by our associate, Rev. E. C. Bolles; these lectures were also illustrated by the lantern with the calcium light, which were very successfully manipulated with the assistance of Mr. E. Bicknell. It is to be hoped that lectures with illustrations of this character will be

given during the next season. This plan has thus far succeeded admirably in rendering the study of the sciences attractive.

The library has received by donation and exchanges 1,046 bound volumes and 8,543 pamphlets, besides newspapers, manuscripts, etc., the donations from one hundred and ten individuals and twenty-six societies, the exchanges from ninety-six societies and incorporated bodies, of which sixty-four are foreign. From the editors of the "American Naturalist" one hundred and eighty-seven serial publications.

It is only requisite at this time to present these statistics, the particulars having been reported at the regular meetings and printed in the BULLETIN.

Museum. Many valuable additions have been made to the department of Natural History, which have been deposited with the Trustees of the Peabody Academy of Science, and have been acknowledged, duly cared for and properly arranged by the officers of that Institution. The specimens of an historical interest and works of art are placed in Plummer Hall under the immediate superintendence of the officers of the Institute. Those of an historical interest consist of a large collection of antiquarian and historical relics; paintings and engravings of many of the old houses, and of the persons who have in years past been prominent in our annals; medals; coins; paper currency, etc., etc. Additions continue to be made to this department, the collection is becoming one of great value, and more extended accommodations are required in order to have it properly arranged and classified. The few specimens of works of art, possessing no special interest, are not arranged systematically, and may be regarded only as a nucleus, around which it is desirable that, at an early

day, an art museum may be formed. The recent introduction of drawing into our public schools, the increased attention given to artistic studies, and a growing appreciation of skilled labor, and the large remuneration it commands, require that some efforts by the Institute should be given in this direction. To meet these increasing demands of the public upon our resources, may we not reasonably expect a liberal response from members and friends?

Horticultural exhibitions have been very successfully conducted during the past season. The old zeal that, years long since, actuated our movements in this direction, seems to have been renewed in a younger generation and to burn with an undiminished lustre. A series of twelve exhibitions have been held, commencing on Monday, May 29th, and closing on Wednesday, November 8th, including two, opened only during the evening, for the display of the night blooming cereus, and the annual in September, opened to the public from Tuesday, the 19th, to Friday, the 22d. On this latter occasion, the hall was very tastefully decorated with festoons and wreaths of evergreens, stands and baskets of flowers; many choice pot plants and a goodly collection of fruits and vegetables were placed upon the tables. Contributions were received not only from those having extensive grounds, but from many whose gardens were of limited dimensions. The aggregate made fine exhibitions, and varied with the successive appearance of those showy and attractive objects that adorn the garden, coming and going at regular intervals, marking with great exactness the progress of the seasons in their annual course. The attendance was large and the general interest manifested by the visitors seemed to indicate that our humble efforts in

this direction may lead to the promotion of a taste for the cultivation of beautiful flowers, fine fruit and choice vegetables in this community.

Financial. The Treasurer's report shows an increase in the annual income, yet additional means are requisite to enable the Institute to perform in a fitting manner the various duties which the community may reasonably expect.

DEBITS.

Athenæum, for rent and Librarian.	\$359.00
Salaries, 781.00; Coal, 147.25.	928.25
Postages, 20.41; Sundries, 55.51.	75.95
Social meetings and Excursions.	772.00
Publications, 1238.50; Bank Tax, 11.93.	1250.43
Gas, 70.20; Express, 30.40; Insurance, 30.00.	130.60
Collections, 6.15; Balance of last year, 335.77.	341.92
Balance in Treasury.	2.48

Historical.

J. Perley, for binding.	75.00
---------------------------------	-------

Natural History and Horticulture.

Exhibition season, 1870, 26.87; do. 1871, 159.78.	186.65
	<hr/> \$1,113.28

CREDITS.

Dividends of Webster Bank, 20; Social meetings and Excursions, 1,206.45.	\$1,226.45
Hall, 123.00; Sundries, 10.25; on acc't of note, 21.15.	154.40
Athenæum, proportion of coal, janitor, etc.,	118.62
Publications, 128.28; Assessments, 1,278.00.	1,706.28

Historical.

Dividend Saunkeag Bank, 24.00; Michigan Central R. R. dividends, 60.00.	84.00
---	-------

Natural History and Horticulture.

Dividends Lowell Bleachery, 160.00; P. S. & P. R. R., 19.50.	179.50
Horticultural Exhibitions, 1871.	248.78

Davis Fund.

Coupons Burlington and Missouri River Railroad Bonds.	138.25
Coupons Dixon, Peoria and Hannibal R. R. Bonds.	237.00
	<hr/> \$4,113.28

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 4.

SALEM, MASS., JUNE, 1872.

NO. 6.

One Dollar a Year in Advance. 10 Cents a Single Copy.

ANNUAL MEETING, WEDNESDAY, MAY 8TH, 1872.

RETROSPECT FOR THE YEAR.

[*Continued.*]

Publications. The BULLETIN has been continued in monthly numbers, giving full reports of the doings of the Institute, and abstracts of papers read at the meetings; this makes an annual volume of some one hundred and sixty pages and a copy of each issue is sent gratuitously to the members. Vol. xi, No. 1, of the "Historical Collections" has been printed, and another part is nearly ready for distribution.

A fund, securely invested, the income of which to be expended in printing the proceedings of the Institute, and papers on scientific and historical subjects presented at its meetings, also records, diaries, letters and other material that will tend to elucidate our local history, is a great desideratum, and would tend to rescue from oblivion many interesting and valuable memorials of the olden times.

The importance of multiplying copies of all valuable documents, for which purpose the press is the great agent, cannot be overestimated, and numerous citations can be adduced in confirmation of the statement. The incidents connected with the late great conflagration at Chicago may suffice in this case. The Historical Society of that city lost much that is irrecoverable; as manuscript documents and correspondence relative to the early history of Illinois. In the Academy of Sciences of Chicago were lost also the valuable manuscripts containing the results of the Scientific work of Dr. William Stimpson for nearly twenty years; these were ready for the press, awaiting the action of government to have them printed.

OFFICERS ELECTED.

for the year ensuing and until others shall be chosen in their stead.

President.

HENRY WHEATLAND.

Vice Presidents.

Of History — A. C. GOODELL, JR. *Of Horticulture* — WM. SUTTON.
Of the Arts — GEO. PEABODY. *Of Natural History* — F. W. PUTNAM.

Recording and Home Secretary.

AMOS H. JOHNSON.

Foreign Secretary.

A. S. PACKARD, JR.

Treasurer.

HENRY WHEATLAND.

Librarian.

W. P. UPHAM.

Superintendent of the Museum.

JOHN ROBINSON.

Curators of Historical Department.

W. P. Upham, M. A. Stickney, John Robinson.

Curators of Natural History Department.

H. F. King, G. A. Perkins, William Neilson.

Curators of Department of Horticulture.

R. Manning, A. F. Bosson, Wm. A. Ireland.

Curators of Department of the Arts.

James A. Gillis, F. H. Lee, H. F. G. Waters.

Lecture Committee.

Jas. Kimball, Geo. Perkins, Wm. Northey, Wm. Neilson, E. C. Bolles.

Finance Committee.

J. C. Lee, R. S. Rogers, James Upton.

Field Meeting Committee.

A. W. Dodge, C. M. Tracy, E. N. Walton, Caleb Cooke, A. B. Hervey.

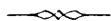
Library Committee.

J. G. Waters, Alpheus Crosby, H. M. Brooks.

*Publication Committee.*A. C. Goodell, Jr., F. W. Putnam, R. S. Rantoul, H. M. Brooks,
G. D. Phippen.

MEMBERS ELECTED.

Samuel Chamberlain, James E. Trask, Sidney Winslow and Elbridge Baker, all of Salem, were elected members.



REGULAR MEETING, MONDAY, MAY 20th, 1872.

THE PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence:—

From E. W. Buswell, Boston, May; J. J. H. Gregory, Marblehead, May 10; Augustus Mudge, Danvers Centre, May 4; W. Neilson, May 10; Wm. Northey, May 13; George Peabody, May 11; M. A. Stickney, May 14; John A. Vinton, Winchester, May 9.

The LIBRARIAN reported the following additions:—

By Donation.

BUTLER, B. F., M. C. Ellis's Speech in U. S. H. R., Apr. 30, 1872. Butler's Speech in U. S. H. R., Apr. 18, 1872. Report of the Department of Agriculture for March and April, 1872. Dawes' Speech in U. S. H. R., May 3, 1872.

CLOGSTON, W., of Springfield, Mass. London Directory, 1857, 1 vol. 12mo. Ithaca and Owego Directory, 1867-8. 1 vol. 12mo. Utica Directories, 1842-3, 1853-4, 1858-9, 1861-2, 1867-8. 5 vols. 12mo. Oneida County Directory, 1866-7. 1 vol. 12mo.

DEPARTMENT OF THE INTERIOR. Mortality of the U. S. for 1850, 1860, 1870. 4to pamph.

KIMBALL, JAMES. Miscellaneous pamphlets. 7.

LEE, JOHN C. Commercial Bulletin for May 11, 1872.

MANNING, ROBERT. Amateur Cultivator's Guide. 2 vols. 8vo. 1869-70.

WHEATLAND, STEPHEN G. Neill & Smith's Compendium of Medical. 1 vol. 8vo. Hooper's Physicians' Vade Mecum. 1 vol. 12mo. Darwin's Origin of Species. 1 vol. 8vo. Digestion and its Derangements. 1 vol. 8vo. Watson's Practice of Physic. 1 vol. 8vo. Bowman's Medical Chemistry. 1 vol. 12mo. Wilde on Diseases of the Ear. 1 vol. 8vo. Paget's Surgical Pathology. 1 vol. 8vo. Wood's Practice of Medicine. 2 vols. 8vo. London Lancet. 1 vol. 8vo. Hunter. 1 vol. 8vo. Carpenter's Principles of Human Physiology. 1 vol. 8vo. Dictionnaire de Médecine. 1 vol. 8vo. Dwight's Modern Surgery. 1 vol. 8vo. Book of Prescriptions. 1 vol. 12mo. The Prescriber's Complete Handbook. 1 vol. 12mo. Taylor's Medical Jurisprudence. 1 vol. 8vo. Sargent's Minor Surgery. 1 vol. 12mo. Copland's Medical Dictionary. 1 vol. 8vo. Beck's Materia Medica. 1 vol. 8vo. Wilson's Diseases of the Skin. 1 vol. 8vo. Mille's Practice of Surgery. 1 vol. 8vo. U. S. Dispensary. 1 vol. 8vo.

WILLIAMS, HENRY L. Salem Gazette, 76 nos. Boston Shipping List, 1844. 1 vol. folio.

By Exchange.

PUBLISHERS. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Land and Water. Lawrence American. Little Giant. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem Observer.

Mr. JOHN ROBINSON exhibited an interesting collection of native plants in flower which he had gathered in this vicinity during the past few days, and made some remarks upon the same, indicating the localities, and time of blooming, which was several weeks later the present season than that of the average periods for some ten or twelve previous years. The following may be specified: *Sanguinaria Canadensis*, *Erythronium Americanum*, *Epigaea repens*, *Thalictrum anemonoides*, *Anemone nemorosa*, *Thalictrum dioicum*, *Viola pedata*, *Viola pubescens*, *Viola sagittata*, *Viola blanda*, *Houstonia cerulea*, *Arisae-*

TABLE CONTAINING THE DATES OF THE FIRST FINDING IN FLOWER OF SOME OF OUR NATIVE VERNAL PLANTS.

	1856	1857	1858	1859	1861	1862	1864	1865	1866	1867	1868	1869	1870	1871
<i>Anemone nemorosa</i> , Wind Flower.....	Apr. 30	Apr. 22	Apr. 12	Apr. 19	Apr. 27	.....	Apr. 27	Apr. 11	Apr. 23	Apr. 25	Apr. 21	Apr. 23	Apr. 25	Apr. 23
<i>Asquilegia Canadensis</i> , Wild Columbine.....	May 15	May 11	May 7	May 12	May 10	.....	May 5	.....	.....	.....	.....	.....	.....	.....
<i>Aralia trifolia</i> , Dwarf Ginseng.....	May 18	.....	May 21	May 20	.....	.....	.....	.....	.....	.....	.....	.....	May 18	.....
<i>Arethusa bulbosa</i>.....	.....	.....	.....	.....	.....	.....	May 30	.....	June 9	June 5	June 12	May 31	June 2	May 28
<i>Cornus Canadensis</i> , Dwarf Cornel.....	.....	June 1	June 1	May 20	May 28	.....	May 25	May 21	May 30	June 1	June 3	June 6	May 26	May 26
<i>Cypripedium acule</i> , Ladies' Slipper.....	May 25	June 1	May 29	May 20	May 28	.....	June 1	May 21	May 30	May 28	June 3	May 30	May 28	May 26
<i>Epigaea repens</i> , Trailing Arbutus.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Erythronium Americanum</i> , Dog's Tooth Violet.....	.....	Apr. 22	Apr. 15	Apr. 15	Apr. 21	Apr. 20	Apr. 21	Apr. 8	Apr. 23	Apr. 16	Apr. 21	Apr. 25	Apr. 25	Apr. 16
<i>Hepatica trifolia</i> , Round-leaved Hepatica.....	Apr. 19	Apr. 23	May 28	May 19	May 10	Apr. 6	May 20	May 19	May 21	May 21	May 20	May 28	May 27	May 11
<i>Kalmia latifolia</i> , Laurel.....	June 20	.....	June 20	.....	.....	.....	June 18	June 10	June 12	June 10	June 28	June 27	June 20	June 13
<i>Nymphaea odorata</i> , Water Lily.....	July 17	July 7	July 1	.....	.....	.....	.....	.....	June 28	July 1	July 13	July 19	July 7	June 21
<i>Oldenlandia purpurea</i> , Bluet, Houstonia.....	Apr. 30	Apr. 26	Apr. 17	Apr. 19	Apr. 27	Apr. 26	Apr. 19	Apr. 2	Apr. 25	Apr. 21	.....	.....	.....	.....
<i>Sanguinaria Canadensis</i> , Blood-root.....	.....	Apr. 12	Apr. 7	May 31	Apr. 28	Apr. 21	Apr. 15	Apr. 2	Apr. 20	Apr. 16	Apr. 16	Apr. 10	Apr. 10	Apr. 6
<i>Sarracenia purpurea</i> , Side Saddle Flower.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Smilacina bifolia</i> , Two-leaved Solomon's Seal.....	May 25	June 1	June 4	.....	.....	.....	.....	.....	.....	.....	June 5	June 12	June 1	May 28
<i>Tricentalis Americana</i> , Star Flower.....	May 22	June 1	May 29	May 20	May 29	.....	May 31	May 21	May 28	May 28	June 6	May 25	May 22	May 21
<i>Utricularia sessilifolia</i> , Sessile-leaved Bellwort.....	.....	May 9	May 8	May 1	May 5	.....	May 5	May 16	May 20	May 25	June 1	May 25	May 18	May 21

* May 24, snow two feet deep.

† Two flowers. ‡ Snow-storm. § Found two yellow ones.

ma triphyllum. He presented the accompanying table — containing the date of the first finding in flower, the several species enumerated therein — compiled by one of our enthusiastic collectors, the results of his observations for the past fifteen years.

MR. GEORGE D. PHIPPEN spoke of some of the localities which he was wont to frequent, in years long past, in search of our native plants, and which are now occupied by dwellings or manufacturing industries. He alluded briefly to the great change that had taken place in the immediate suburbs of the city.

REV. E. C. BOLLES remarked, that a day or two before, he had listened to a lecture by Prof. Asa Gray on the Fertilization of Plants by the Agency of Insects, and that several of the wild-flowers on the table had served as illustrations. Among these was the *Houstonia*, of which there had long been known to be two kinds of flowers. The first had stamens projecting above the dwarfed pistil, while in the second the stigmas were carried up far beyond the anthers. The members of the Institute would see both kinds pretty equally represented in the tufts of flowers before them, distinguishing these by observing that in some flowers they would see only the two stigmas, in others only the four anthers projecting from the throat of the corolla. So the *Houstonia* had been said to have *dimorphous* flowers, but the reason for this variation had not been understood till an explanation had been sought in the possibility of an artificial fertilization. It was now seen that the pollen of any *Houstonia* blossom did not fertilize the ovules of the same flower. In the case of the flowers with extruded stigmas, this could not occur unaided, because the stamens were deeply sunk in the

corolla—while in the other kind the pollen would not be found to exert a fertilizing effect upon its own stigma. But the two kinds of flowers were exquisitely arranged to produce cross-fertilization. An insect, exploring a corolla where the anthers were at the bottom, would cover its proboscis with pollen, which would be carried to the depressed stigma of the other kind of flower, and while visiting that second flower, the insect's head would remove some of the pollen, which again it would leave on the exerted stigma of a third flower of the kind first plundered. The structure of these flowers is to be explained in Prof. Gray's book, just passing through the press, entitled "How Plants Behave."

Mr. J. H. EMERTON mentioned that in November last he dug a root of *Batrychium dissectum* from an open pasture, and in January set it down with other ferns in a glass case. In about two months it produced a new frond with the usual triangular outline, but nearly twice as large as the old ones, and with the divisions of the pinnae almost entire. The next frond, which grew in another month, was of the ordinary kind. It afterward produced in succession three fronds five or six inches long, with pinnae in pairs over an inch apart toward the base, and with their divisions almost entire, looking very much like small sterile fronds of *Osmurida Claytoniana*.

Mr. F. W. PUTNAM gave an account of the explorations of several members of the Institute at Jeffries' Neck, in Ipswich, on Friday last.

The researches were undertaken for the purpose of ascertaining if a large number of depressions, in two groups, about a mile apart, were graves of Indians, as had been supposed. After carefully digging into several

of the places and getting to the original bottoms of the holes, it was evident to all present that they were not graves, and though a few stone implements and pieces of Indian pottery were found in the course of the excavations, there was nothing by which the original makers of the holes could be determined beyond doubt as Indians, though unquestionably the holes had been dug years ago by some race of men, and perhaps by the Indians for some temporary purpose. During the digging an old clay pipe bowl, of the pattern used by the first settlers, was found, indicating that perhaps the depressions were of a comparatively recent date, though the pipe might have been lost at a time following the original working, as it was found only a few inches below the sod.

One of the most interesting results of the explorations was the finding by Mr. Goodell of a well marked piece of Indian pottery in the gravel bank about three feet below the surface. This piece of pottery was seen, and the spot from which it was taken carefully examined, by several of the party, and it was unquestionably carried into the bank of gravel at the same time the bank was formed, and not buried there, as the gravel was undisturbed and the fragment of pottery by itself. The only question is as to the age of the gravel deposit, whether original river drift, or wash from the hills above at a more recent time, though even if of the later date it would prove of great antiquity.

Mr. Putnam exhibited a plan, made by Mr. J. H. Emerson, of one of the groups of depressions, showing their relative positions, and also a section of one of those opened. A sketch, showing the clearing which had been made by taking away all the large stones from the vicinity, and the relation of the depressions to the surrounding country, was made by Mr. C. A. Walker.

Mr. Putnam was followed by remarks from Messrs.

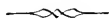
Goodell, Kimball, and others. After an interesting discussion on these and other subjects suggested by the above topics the meeting was adjourned.



REGULAR MEETING, MONDAY, JUNE 3, 1872.

PRESIDENT in the chair.

Samuel Calley of Salem and George E. Lewis of Peabody were elected resident members.



FIELD MEETING AT MIDDLETON, WEDNESDAY, JUNE 12TH, 1872.

THE RAMBLE.

THE Institute, in arranging the series of Field Meetings, the present season, decided to commence at Middleton and to accept the kind invitation of Mr. Simon F. Esty to use his grounds as the place of rendezvous for the day. Thither the party, on alighting from the cars of the Lawrence Branch of the Eastern Railroad, at the Middleton station, about two hours before noon, wended their way, and found a beautiful walnut grove well adapted for the purpose of rural excursions, situated on the borders of a large pond formerly known as "the Great Pond," but now designated "Forest Lake."

From this place the several parties, after depositing their baskets, etc., went in different directions as inclinations dictated; some upon the pond, boats being in readiness for the purpose, others rambled through the grove

and adjoining woods, or betook themselves to some of the pleasant by-paths that here abound, and are more or less skirted with shrubbery and the flowering plants that appear and disappear, in succession, with the advance of the season. Many of these by-paths were undoubtedly the primitive roads constructed by the early settlers, from house to house, without any definite plan, merely for their own personal convenience. When the villages and towns sprung up requiring better and more direct means of communication, other roads were constructed and these were soon abandoned; the people accordingly changed their places of residence and built other houses; the old ones being neglected soon fell into decay. One occasionally meets in rambling through the woods and following the devious windings of some of these old by-paths or cross-roads the remains of an old cellar, the gnarled apple tree near by, a few plants that always linger in the footsteps of man, and perhaps the old well in the midst of dense woods and forests. Nature soon usurps her sway and clothes with rich verdure the places that man ceases to cultivate.

This diversity of the surface into hills and dales, with the various brooks and ponds interspersed, adds to the beauty of the scenery and greatly contributes to the pleasures of rural walks. Through the kindness of Mr. David Stiles, several of those interested in antiquarian lore were enabled to see specimens of the old houses, two stories front with a lean-to in the rear, that have braved the blasts of some two hundred winters, also the burial places where the forefathers of the hamlet sleep with their names inscribed upon the simple stone that marks the spot of interment. Mr Stiles directed attention to other objects of historical interest; some of these will be alluded to in the afternoon session. Middleton has two railroads located within its territory, one from Salem to Lowell in the extreme

western part at the paper mill, the other from Salem to Lawrence through the central part near the village. The occupation of the inhabitants is largely agricultural: though the manufacture of shoes and paper is carried on to considerable extent.

After partaking of the repast at the grove the party proceeded to the church, where the afternoon session was held, commencing at 3 P. M. The PRESIDENT in the chair.

AFTERNOON SESSION.

. Records of preceding meeting read.

The SECRETARY announced the following correspondence:—

From F. S. Drake, Boston, May 11; Simon F. Esty, Middleton, May 28; H. Hagen, Cambridge, May 6; A. Lackey, Haverhill, June 4; James Niven, Saugus Centre, May 22; W. S. Perry, Geneva, N. Y., May 20; A. A. Scott, Saugus Centre, May 21; W. P. Upham, May 11; Dürkheim, Naturwi-senschaftlicher Verein der Rheinl. Edz., Feb. 7; Gottingen, Die K. Gesellschaft der Wissenschaften, Jan. 10; Saint Petersburg, Academie Imper'ale des Sciences, Ap. 23; Thronhjelm, Société Royale des Sciences et des Lettres, Aug. 16, Dec. 12; U. S. Dep. of Interior, May 11.

The LIBRARIAN reported the following additions:—

By Donation.

BROOKS, HENRY M. Corry's Life of Washington. 1 vol. 12mo. Juvenile Lyre. 1 vol. 8vo. Life of Marion. 1 vol. 12mo. Bibliotheca Historica. 1 vol. 8vo.

BRYANT, JAMES S., of Hartford, Conn. Register for the State of Conn. for 1790-16mo. Flint's Discourse on Washington. 8vo. Proudfit's Sermon. 8vo.

BUFFUM, JAMES N., of Lynn, Mass. Lynn City Documents for 1871. 1 vol. 8vo.

BUTLER, B. F., M. C. Kelly's Speech in U. S. H. R. May 1, 1872. Butler's Speech in U. S. H. R., May 21, 1872.

CHAMBER OF COMMERCE, New York. Fourteenth Annual Report of, 1871-72. 1 vol. 8vo.

CROSBY, ALPHEUS. Dartmouth Centennial. 1869. 8vo pamph. Catalogues of Dartmouth College, 1864-5, 1870-1, 1871-2. 3 pamphlets, 8vo.

DABNEY, M. P. Works of Mrs. Barbauld. 2 vols. 8vo. Domestic Memoirs. 2 vols. 12mo. Thoughts on Education. 1 vol. 12mo. Sketches of Foreign Manners. 1 vol. 12mo. Works of Dr. Franklin. 1 vol. 16mo. Memoirs of the Life of M. L. Ramsay. 1 vol. 16mo. Hamilton's Letters. 1 vol. 12mo. Journal of the American Unitarian Association. 10 nos. Fac-simile of the Original Manuscript of Burns' Jolly Beggars. 4to pamph.

U. S. DEPARTMENT OF THE INTERIOR. U. S. Geological Report of Nebraska. Final Report. 1 vol. 8vo. Ninth Census of the U. S. 4to pamph.

EXECUTIVE COMMITTEE OF THE FRENCH RELIEF FUND, Boston. Reports of, 2 pamphlets. 8vo.

PEABODY INSTITUTE, Peabody, Mass. Peabody Press and Danvers Monitor. 1870, 1871. 2 vols. folio.

LANGWORTHY, J. P., of Boston. Miscellaneous pamphlets, 39.

LEE, JOHN C. Commercial Bulletin. May 18, 1872.

PALFRAY, C. W. Directory of Hannibal, 1871-2. 1 vol. 8vo.

PEABODY, Mrs. FRANCIS. Every Night Book. 1 vol. 12mo. Every Saturday 21 nos. Miscellaneous pamphlets, 12.

PERRY, W. S., of Geneva, N. Y. Digest of the Canons. 8vo pamph. 1872.

PHILLIPS, W. P. Agriculture of Mass., 1871-2. 1 vol. 8vo. Thirty-Fifth Annual Report of the Board of Education. 1 vol. 8vo. Boston, 1872. Miscellaneous pamphlets, 12.

PREBLE, G. H., of Charlestown. Notes on Ship-building in Mass. 8vo pamph. 1872.

SHEPARD, HENRY F. American Naturalist. 15 nos. Miscellaneous pamphlets, 6.

STORY, ELIZA. East Indies Directories. 2 vols. 4to. Geographical Grammar. 1 vol. 8vo. Requisite Tables. 2 vols. 8vo. Geometrical Problems. 1 vol. 8vo. Blunt's Coast Pilot. 1 vol. 8vo. Clarrissa. 8 vols. 12mo. Salmon's Gazetteer. 1 vol. 12mo. Volney's Ruins. 1 vol. 16mo. Willich's Lectures. 2 vols. 8vo. Miscellaneous pamphlets, 50.

SUMNER, CHAS., U. S. Senate. Sumner's Speech in U. S. Sen. May 31, 1872.

ROBINSON, W. S., Clerk Mass. House of Reps. Journal of the House of Reps. of Mass. 1865, 1866, 1867, 1868, 1869, 1870, 1871. 7 vols. 8vo. Report of the Committee on Claims on the Alterations and Repairs upon the State House. 1870. 1 vol. 8vo. Miscellaneous pamphlets, 65.

WHITING, WILLIAM, of Boston. Memoir of Rev. Saml. Whiting, D. D., by the donor. 1 vol. 8vo. Boston, 1872.

WINTHROP, ROB'T C., of Brookline, Mass. Life and Letters of John Winthrop. 1588-1619. 2 vols. 8vo. Boston. 1869.

By Exchange.

CROSSE ET FISCHER. Journal de Conchyliologie. Tome xii. 3e Série. No. 1. 1872.

ENTOMOLOGISCHEN VEREIN IN STETTIN. Entomologische Zeitung. 32 Jahrg. 1871. 8vo. Stettin. 1871.

K. GESELLSCHAFT DER WISSENSCHAFTEN IN GÖTTINGEN, HANOVER. Nachrichten, 1871. 16mo pamph.

KONGELIGE NORSKE VIDENSKABERS-SELSKAB, THRONBILJEM. Skrifter, i det 19de Aarhundrede, Bind femte, Heft. I, II. 1865-68. Bind-jette, 1870. 3 pamphlets, 8vo.

KÖNIGLICHE BAYERISCHE BOTANISCHE GESELLSCHAFT IN REGENSBURG. Flora, Neue Reihe. 29 Jahrg. 1871. 8vo pamph. 1871.

OBERLAUSITZISCHE GESELLSCHAFT DER WISSENSCHAFTEN IN GÖRLITZ. Neues Lausitzisches Magazin. Im Auftrage der Oberlausitzischen Gesellschaft der Wissenschaften. Bd. xlviii. 1871. 8vo pamph.

SOCIÉTÉ D'ACCLIMATION, IN PARIS. Bulletin Mensuel, 2me Série. Tome viii. Dec., 1871. 8vo pamph.

SOCIÉTÉ D'ANTHROPOLOGIE IN PARIS. Bulletins, Tomes v, vi. 11e Série. 1870-71. 8vo pamphlets.

SOCIÉTÉ VAUDOISE DES SCIENCES NATURELLES. Lausanne, Bulletin, Vol. x, No. 65, 1870. 8vo pamph.

ZOOLOGISCHE GESELLSCHAFT, FRANKFURT A M. Zoologische Garten. Nos. 7-12. Juli-Dec. 1871. 6 pamphlets. 8vo.

PUBLISHERS. American Naturalist. Christian World. Gardener's Monthly.

Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Land and Water. Lawrence American. Little Giant. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem Observer. The Branonian.

The SUPERINTENDENT of the Museum reported:—

From Miss J. R. COLBY, a Fire Set, taken from the ruins of the house of Mrs. Mulliken, burned by the British at the Battle of Lexington, April 19, 1775.

FIRST FIELD MEETINGS—DR. WILLIAM STIMPSON.

THE PRESIDENT in his opening remarks alluded to the coincidence of this day being the twenty-third anniversary of the first Field Meeting, which was held in the neighboring town of Danvers, on June 12, 1849. Some twelve or fifteen members in private carriages assembled at the Plains, and under the guidance of our old friend, Dr. Andrew Nichols, visited the locality of the *Vaccinium vitis-idea* first discovered by William Oakes in 1820—this plant is seldom found growing elsewhere within the limits of Massachusetts. The sphagnous borders of Cedar Pond in Wenham were also visited and there was detected the *Andromeda polifolia* just passing out of bloom. Thence repairing to Berry's Tavern at the Plains, the afternoon was devoted to explaining and illustrating by the microscope (a constant accompaniment at these meetings) the structure and economy of the lower algae, fungi, lichens, etc. The second meeting, a few weeks later, was held at the residence of A. T. Newhall in Lynnfield. There were present with us on this occasion, Messrs. F. Alger and C. T. Jackson of Boston, and Seaman of Germany. Ship Rock and the serpentine ledges in Lynnfield were visited, and at the afternoon session furnished topics for discussion. The third, on the 28th of August following, was at the seashore on Burley Smith's farm in Manchester. Some visited the woods of Essex and Manchester where Cutler and Oakes, in years long past, were

went to herbarize ; a few spent the time in dredging along the adjacent shores, a boat having been sent from Salem for this purpose. The visitors on this occasion were Mr. C. Girard, an assistant of Prof. Agassiz, and a young man named Stimpson, hailing from Cambridge, and not then out of his teens. Acquaintance had been made with Mr. Stimpson, a week or two previous, during a trip in the steamer R. B. Forbes from Boston to Salem, with members of the American Association for the Advancement of Science, who were visiting Salem, on the day after the adjournment of the session at Cambridge. Dredges having been put on board, at the suggestion of Professor Agassiz, were used occasionally during the trip.

Let us consider in this connection the subsequent career of this young man, the notice of whose death at Ilchester, near Baltimore, on the 26th ult., has been so recently announced. That trip from Boston to Salem was his first experience in dredging, a novelty to him, and he was much interested in this pursuit. He visited Salem several times during that autumn, and accompanied me on dredging excursions in the harbor. The results of his gleanings on these occasions formed the basis of a series of observations which were embodied in a work on the New England Shells, published in 1851—his first introduction to the scientific world as an author. This was soon followed by a paper on the Marine Invertebrates of Grand Menan, published in 1853, under the auspices of the Smithsonian Institution, and has since been considered as the first authority in the marine zoology of that region. He then spent several years in the North Pacific, Japan, etc., as naturalist to Government Expeditions and made vast collections, principally the results of dredging in those seas. He then resided for some years at Washington, in the quiet prosecution of his investigations, and the publica-

tion of their results. When the late Robert Kennicott went to Alaska, in 1865, in the employment of the Russian Telegraphic Expedition, Dr. Stimpson removed to Chicago to assume the duties of Secretary of the Chicago Academy of Natural Sciences, and maintained that connection until his death. During that interval he visited Florida on several occasions, and always obtained numerous interesting collections for the Academy.

Dr. Stimpson ranked high as a scientific investigator, his researches were thorough and his descriptions clear and accurate. He has added a large number of new species to the list of marine animals, the detailed account of which, forming many zoological monographs with illustrations nearly ready for the press, were destroyed by the Chicago fire as were also the types of his species. This great loss, the result of his labors for twenty years, affected him severely and influenced very much the state of his health.

The past winter Dr. Stimpson was engaged on board the U. S. C. S. steamer *Bache* in superintending dredging between Cape San Antonio, Cuba, and the coast of Yucatan and thence to Key West—but his increasing infirmities prevented him from fully carrying out his plans—returning not long since to the residence of his father-in-law near Baltimore he became gradually worse and died, as before noticed, on the 26th of May.

It seems appropriate, at this time and on this occasion, to allude to the decease of Dr. Stimpson, especially from the fact that he received his first experiences in the uses and results of dredging at one of these outdoor meetings, and that after the lapse of more than a score of years a life, then at its commencement, closes so full in the performance of scientific work and having done so much for the promotion and diffusion of science in this country.

Mr. F. W. PUTNAM alluded to the high position which Dr. Stimpson had taken in the ranks of science, and to the esteem in which he had always been held by those associated with him, and closed by proposing that a committee be appointed by the Institute to draw up a series of resolutions expressive of the loss which it had sustained. The committee, consisting of Messrs. Putnam, Bolles, Johnson and Wheatland, afterwards reported the following resolutions, which were unanimously adopted, and it was voted that a copy be sent to the family of Dr. Stimpson, and to the Chicago Academy of Sciences.

Resolved: That the Essex Institute has learned with profound regret of the recent death of Dr. William Stimpson, who has for so long a time been distinguished as the foremost American student in Marine Zoology, and whose loss to science is the greater since it has occurred in the midst of his successful labors to restore the fortunes of that Institution which has owed so much to his eminent attainments.

Resolved: That even in the grief which this severe affliction causes, the Essex Institute cannot but remember with pride that Dr. Stimpson's first acquaintance with the department of investigation which he afterwards pursued to such results, was made under its own auspices, and that the records of its Field Meetings for 1849 will preserve the honorable memorials of this beginning of his fame.

Resolved: That the Secretary of the Institute be instructed to convey, by these Resolutions, to the family of Dr. Stimpson and to the Chicago Academy of Sciences, not only the assurances of the high appreciation in which its members hold the scientific acquirements and labors of their lamented friend, but also their earnest sympathy with his relatives in the sorrow of their bereavement.

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 4.

SALEM, MASS., JULY, 1872.

No. 7.

One Dollar a Year in Advance. 10 Cents a Single Copy.

FIELD MEETING AT MIDDLETON, WEDNESDAY,

JUNE 12TH, 1872.

[*Continued.*]

THE EARLY MEETINGS OF THE SOCIETY.

Mr. S. P. FOWLER, of Danvers, one of the original members of the Society, gave an interesting retrospect of its early history, and narrated many incidents of its first meetings, alluding especially to the one held in Topsfield on Wednesday, the 16th of April, 1834, in furtherance of the object and to complete the organization by the appointment of committees, etc. Specimens in the various branches of Natural History, with apparatus for collecting, were exhibited and illustrated, and the modes of preservation of the same, with a view to the formation of a Museum were discussed by William Oakes of Ipswich, Dr. Andrew Nichols of Danvers, and others. These two gentlemen may be justly regarded among the pioneers of science in this community, and the present generation are now reaping the fruits of their labors and their example in this direction;

they have long since been gathered to their fathers. Mr. Oakes died on the 31st of July, 1848, a noted and enthusiastic botanist; Dr. Nichols, a valued physician, and one particularly conversant with our local geology and botany, March 31, 1853, just as the little *Draba verna*, a plant of which he always delighted to make mention and collect specimens, was expanding its tiny petals to another vernal season. He also spoke of the field meetings in Danvers and Lynnfield during the summer of 1849 and the great interest which Dr. A. Nichols, Mr. Thomas Cole of Salem, Dr. George Osgood of Danvers and others took in this movement for the promotion of science.

HISTORICAL NOTICES OF MIDDLETON.

DAVID STILES of Middleton being called up, said he proposed to say something about the beautiful pond (on the shores of which the society had this day taken their repast), and two of the earliest settlers. Boston was settled in 1630 and four years subsequently Newton people under the care of Richard Bellingham, Esq., of Boston (afterwards Gov. of the Colony), moved to Cochichewick (Andover) and settled on the fish brook leading from the Great Pond to the Merrimac River. This small colony was exempt from tax and had the direct care of an agent, a compensation for the privations and dangers of an unprotected company in the midst of savages and in the wilderness. Bellingham must have passed to and fro within a mile of this pond in Middleton. None of the towns west of this were then settled and the roads at that time were through Danvers, Topsfield and Boxford, to old Rowley then called Salem Newmeadows, and Rowley Village. Bellingham's keen eye found this pond, and in 1639 obtained a grant for about twelve hundred acres which contained the pond and at that time an Indian plantation (relics and

skeletons of the Indians are still found in this locality). In 1659 Bellingham sold this claim to Bray Wilkins whose descendants (some of them) are before me to-day. Wilkins was from Wales, came over in one of Gov. Endicott's vessels and tended a ferry in Lynn fifteen years before settling in Middleton. This was in 1660, one year after purchasing these lands. His dwelling was on the southeast side of the pond and protected from the cold winds by Wills Hill on the north. His family consisted mostly of boys who took up a large portion of this claim and erected dwellings thereon for themselves, and this accounts for this name being more numerous in our early history than any other. Wilkins attended church at Salem Village, of which this town was a part, under the pastorate of Rev. Samuel Parris, in 1692, at the time of the witchcraft, and one of his grandsons was a victim.

In 1663 Thomas Fuller from Woburn bought a claim of Maj. General Dennison, lying east of Bellingham and parallel with it, and erected his dwelling just south of this church on the site now occupied by the house of Mr. Abijah Fuller. Thomas Fuller was a blacksmith by trade. He had quite a number of sons who also settled on his lands and for some years these two families must have been the principal ones in this part of the town.

In 1728 these people obtained a charter from the Great and General Court for a town. It enjoined upon the inhabitants the settling a minister and hiring a schoolmaster to teach "ye young to read and write." Consequently they settled Andrew Peters, and hired Daniel Towne as schoolmaster. Peters was from Andover, son of Samuel Peters and a graduate of Harvard College, in the class of 1723. The charter was presented to the town by Lieut. Thomas Fuller, designated as one of the principal inhabitants, who, at that period, must have been between ninety

and one hundred years old, and we are assured of this fact by his excellent, though very tremulous, handwriting.

The spot where the town met to receive their charter was at the house of Dr. Daniel Felch, a few rods east of the present church and the dividing line between Salem and Rowley. The meeting-house, though raised at that time, was not covered; it seems, therefore, that the town had been some time preparing for an existence (the population at that time was about four hundred). About thirty years ago I bought and took down this old meeting-house of massive timbers, all oak, most of which squared ten by thirteen while underneath I found oak stumps hewn away to receive the floor timbers which measured over four feet in diameter.

In conclusion, I thank this Society for the interest they have awakened in this county in searching for these hidden treasures, which to the antiquarian, and indeed to all coming posterity, are of so much value.

Mr. A. C. GOODELL, Jr., of Salem, spoke of his pleasant visit during the forenoon to several places of historical interest in the town, especially to the spot alluded to by Mr. Stiles, where the act of incorporation of the town in 1728 was first openly proclaimed, being read by the Sheriff. He then read a copy of the act.

INDIAN RELIC.

Mr. D. J. TAPLEY, of Danvers, described a curious and interesting sculptured stone which was discovered recently at Meredith Village, N. H. The stone was found embedded in clay and deposited in the sandy soil at the head of Lake Winnipiseogee, at a depth of two feet. On carefully removing the coating of clay, an egg-shaped "gorget" was found, having a tapering hole through its longest

diameter and measuring three and seven-eighths inches in length by two and five-eighths in thickness. The material is a silicious sandstone, of a drab color and fine grain, and the sculptures are of a much higher grade of art than any of a similar class extant. The surface of the stone is smooth, and as perfect in contour as if turned in a lathe. The carvings are in bas-relief, on a ground sunk in this surface.

On one side of the stone is a face in relief, similar in its general features to the Mexican and Indian "Masks." On the opposite side is a representation of arrows in various positions, a new moon, and a convolute, or coil, which may represent a serpent. On the third side is a wigwam and a circle supposed to represent the full moon, and on the fourth an ear of corn and a depressed circle containing pictures of the head(?) of some animal, a deer's leg, and a crown(?).

The stone was found by Mr. Seneca Ladd of Meredith Village at the bottom of a post hole which some of his workmen were excavating. As Mr. L. is quite a naturalist, the discovery was hailed by him with enthusiasm, and the relic will be preserved with the greatest care. The discovery is regarded as one of great importance in its archaeological bearings.

Mr. F. W. PUTNAM remarked that the description of the carved stone given by Mr. Tapley had greatly interested him, especially as the carving was shown by Mr. Tapley's drawings to be far more elaborate than anything he had known as the work of the earlier inhabitants of New England. The Mound Builders of the South and West were good workers in stone, and often made quite elaborate carvings, but the later race of Indians were not much skilled in the art, and but few relics of their work

had been found. On this stone, however, we had the characteristic Indian face, similar to the few others that had been found in New England, with an attempt at an artistic result in the finish of the stone and the other figures carved upon it, that would certainly lead us to infer that its maker, if an Indian, was of a far higher caste as an artist than the distorted and childlike outlines of animals and men ordinarily cut or painted by them have heretofore impressed us as possible, and were it not for the fact that the face is so similar to undoubted Indian representations of the human face, which we have from New England, he would be inclined to think that it might have been the work of some other race. The position in which the stone was found marked it as quite an ancient piece of workmanship, and from its shape and the fact of its having a hole through its centre, he believed it would be classed with the singular perforated stones called gorgets, found throughout the country, and always more or less elaborately finished, which were supposed to have been worn on the breast as an ornament or badge of office.

Mr. JAMES H. EMERTON of Salem in speaking of the
SPIDERS AT MIDDLETON

said that while going about the shallow parts of the pond in a boat we saw a large number of spiders, most of them of the genus *Tetragnatha*, on the sedges entirely surrounded by water. They were standing head down with their feet stretched out up and down the leaves and could hardly be distinguished from their withered tips. One of these spiders found on an alder bush overhanging the pond was disturbed. It dropped and ran along on the water without wetting its body until it reached a water plant. These spiders are usually found near water but he had

not before seen them run on the surface although it is a common habit with several other species.

MICROSCOPIC FUNGI.

Rev. E. C. BOLLES of Salem said that if there have been but few flowering plants collected for consideration, almost every one must have remarked, perhaps without knowing what they were, two curious vegetable growths which were largely represented among the specimens upon the table. The roads about Middleton are bordered with a great abundance of Berberry bushes and Blackberry vines; and all of the former and many of the latter exhibit vegetable parasites in profusion upon their young foliage. These parasites are microscopic fungi only visible to the naked eye in the mass. The specimens before the meeting represent two divisions of the great family of the fungi, named *Coniomyces* or *Dust-fungi*, because the most evident character about them is their powdery spores.

The Berberry bushes have a large proportion of their leaves spotted with numerous yellow discolorations. These are found to proceed from clusters of points which roughen the under surface. Microscopic examination shows each point to be a short cylinder thrust up through the cuticle of the leaf, and having its upper edge cut into teeth or segments, which are turned over the outside very evenly. Each cup contains many rounded translucent grains, and as the cup with its frill is white and the grains a rich yellow, the whole makes a very beautiful object for the microscope. The cells are clustered together—hence the common name, Berberry Cluster-cups (*Æcidium Berberidis*). The yellow grains are the spores and with the cups form the fructification of the plant. The rest of its structure as in all fungi is represented by the *mycelium*, or mat of white fibres, which pervades the tissue of the leaf.

In the case of the Blackberry vines, the leaves seem thickly and completely coated on the under side with a powdery orange-colored material. So brilliant is it that a plant so infected is a very striking object by the roadside. On looking more closely, we see that the color is in patches, which, in their tendency to become confluent, have spread over nearly the whole surface of the leaves. The orange material seems to have burst from under the cuticle, as the cluster-cups did. But there are no cups nor cells, only a mass of naked, rounded spores. This is a *Rust*, the *Uredo Potentillarum*; and is found on many plants of the Rose family. The mycelium of the fungus is hidden in this plant as in the other.

Both of these fungi are very common species here. Two features of interest may be noted. First, the immense number of spores, showing the resources of these minute plants. By the dispersion of these germs, widespread injury to the farmers' crops is often done by other species of Rusts, etc. Then again, these Berberry and Blackberry leaves are in many cases hardly unfolded, and yet almost immediately covered with the fungi. This shows that the plant itself is so infected, that year after year, in renewing its own foliage, it renews the parasitic growth as well.

Dr. A. H. JONIXSON of Salem and Rev. L. H. Frary of Middleton being called upon made some interesting remarks upon the object of these meetings and the beneficial influences that may arise therefrom in the promotion of science and general culture in the community.

SCIENTIFIC LECTURES.

The Committee on Lectures reported, that arrangements had been made (subject to the confirmation of the Institute) with Rev. E. C. Bolles of Salem, and Mr. E. Bicknell

of Salem as assistant, to deliver forty lectures "on the microscope and what it shows us" illustrated by the calcium light, in such places in Essex County as may be agreed upon during the year commencing July 1, 1872, eight of them to be given in Mechanic Hall, Salem, on successive Wednesday evenings commencing on the third Wednesday in October.

Voted, To accept the report of the committee, and confirm the doings.

David Weston of Salem was elected a resident member.

Voted, That the Essex Institute hereby tenders its hearty thanks to Mr. Simon F. Esty of Middleton for the use of his beautiful and commodious grove, to the Proprietors of the Congregational Church in which this session has been held and to Messrs. David Stiles, Henry White, Merriam, Tyler and others of Middleton who have extended courtesies on this occasion.

Adjourned.



FIELD MEETING AT GROVELAND, TUESDAY, JULY 16, 1872.

Soon after nine o'clock on the morning of Tuesday, 16th of July, a goodly number of persons began to assemble in the Eastern Railroad Station, Salem, for an excursion to Groveland, taking the 9.25 train for Danvers on the Essex Road, thence a special train on the Danvers and Georgetown, now leased and operated by the Boston and Maine Railroad corporation, the remainder of the route.

The additions to the party from other towns at the several stations considerably augmented the number in attendance. On arrival at Groveland the party was met

by several of the citizens, and proceeded to the new building recently erected through the efforts of the venerable Dr. Jeremiah Spofford, on the site of the Merrimac Academy which was destroyed by fire some two or three years since, where a preliminary meeting was organized. The President, after briefly alluding to the nature of the gathering, and expressing the hope that the day's excursion might be pleasant and instructive to every participant, introduced Dr. Spofford who extended a cordial welcome and described the location of the groves, streams, paths, hills and other objects of interest that were accessible during the forenoon's ramble; when he closed, the party adjourned and went in groups to the various localities pointed out, as inclination dictated.

This building is arranged for a lecture room on the second floor, and on the first, several smaller rooms for a public library, reading room, and other purposes. May the praiseworthy efforts of this venerated friend be fully and speedily carried out, and may he long live to witness the benefits of a good educational institution, ably sustained by the liberality of the friends of true progress and tending largely to promote the culture of the citizens of his native town.

THE NEW IRON BRIDGE.

The great bend in the Merrimac river between Groveland and Haverhill has made the crossing, at this place, from the early days of the settlement highly desirable. Before the construction of the bridges, the ferry at this point received always its fair proportion of travel. It is only recently that the residents in this section of the county have been favored with this great accommodation. This bridge was an object of great interest; it was built by authority of the Legislature (Acts 1870 chap. 219), and

under the direction of the county commissioners, over the Merrimac River near the site of the "Chain Ferry" in Groveland and connecting that town with Haverhill.

It was commenced March 29, 1871, under the superintendence of Col. Coffin of Newburyport. The stone piers, which are the handsomest on the river, were designed by Mr. C. A. Putnam of Salem, and built by Messrs Blaisdell and Parker, the former of New Hampshire and the latter of Rockport. The superstructure was built by the King Iron Bridge Co., of Cleveland, Ohio, and is an iron tubular bridge, light appearing and graceful in construction, but capable of sustaining a great weight. It has 804 feet of flooring, and is 25 feet in clear width. There are six spans, each 126 feet, and a draw of 68 feet, designed by Mr. C. G. Force, engineer of the King Company. The bridge is warranted to sustain a weight of 3,000 pounds to the lineal foot. It was tested and formally inaugurated on Wednesday, April 10, 1872, when one of the spans was subjected to a test of thirty tons, placed as nearly in the centre as possible, and the deflection was only thirteen-sixteenths of an inch. About 14 tons were put upon the draw with no further deflection than would be caused by the straightening of the chains.

The cost of the bridge may be summed up as follows :

For foundation, piers, etc.....	\$48,898.35
" superstructure.....	33,056.67
" interest account.....	3,007.68
	<u>\$84,962.70</u>

and was divided between the county and the adjoining towns in the following proportions :

County of Essex paid twenty-seven-sixtieths.....	\$38,233.22
City of Haverhill paid nineteen-sixtieths.....	26,904.85
Town of Groveland paid eight-sixtieths.....	11,328.36
Town of West Newbury paid six-sixtieths.....	8,496.27
	<u>\$84,962.70</u>

The day of inauguration may be considered one of the important events in the town's life ; a good proportion of the people were out, a collation was provided, and speeches ranging from grave to gay were warm in the approval of this object which has been a cherished one for many years to obtain.

In 1834, 1835 and 1836 petitions were forwarded to the Legislature for a charter to build a bridge at this locality, but the opposition of Haverhill, and more actively that of the Proprietors of Haverhill Bridge, prevented a favorable consideration. This source of objection is now removed, the several bridges over the Merrimac, hitherto controlled by private interests, have been laid out as highways by legislative action (see Acts 1867, chap. 296, and 1868, chap. 309), and the expenses incident thereto and of maintaining the same have been assessed by the county commissioners on the county and towns or cities most benefited.

HISTORICAL NOTICES.

The first bridge over the Merrimac at Haverhill was completed in the autumn of 1794 ; its erection was considered a marvel of mechanical skill and ingenuity. In 1795 the Merrimac Bridge at the Rocks connecting Haverhill with West Newbury was built, and was the longest over this river ; there being but little travel, the proprietors suffered it to fall to decay and in 1818 it was swept away by the ice. It was rebuilt in 1828.

These bridges have superseded the old ferries, the primitive mode adopted by our ancestors to maintain communication with those living on the opposite banks of the large rivers and to facilitate general travel.

An historical sketch of these old ferries with brief allusions to the many incidents connected therewith would embody many valuable facts and be a great contribution to

our local history. The records of the county and of several of our towns contain a mass of material on the subject that would amply repay a careful examination.

The ferries on the Merrimac near Haverhill have varied at different periods in number and location. The first on record was in 1647, Thomas Hale authorized to keep a ferry. In 1711, a ferry was established at Holt's Rocks between Haverhill and Newbury, and was kept for many years by John Swett, father and son, hence the name of "Swett's Ferry." In 1745, there were no less than five ferries between the village of Haverhill and Holt's Rocks: Swett's, at Holt's Rock; Cottle's, at the mouth of East Meadow River (Cottle's Creek); Pattee's near the House where David Nichols now or recently lived; Milliken's at the "Chain Ferry"; and Griffen's nearly opposite the central part of the city.

A ferry has been kept at the location of the New Bridge from 1738 to 1872, or 134 years, as a public landing; for more than one hundred years it had been a regularly attended ferry. About thirty years after the opening of Haverhill bridge, regular attendance was suspended; boats, however, have been kept by individuals for the conveyance of foot passengers.

Some of the party, who were interested in genealogical investigations, repaired to the old records; others, among whom was the author of a valuable memoir of one of the old families of the place, visited the location of several of the original grants of land to settlers from Rowley who first came hither in 1649. This territory at that time was known as "the Merrimac lands" and was within the township of Rowley. The first grants were bounded on the river (the river before the building of roads was the most convenient mode of communication), and extended back a considerable distance, some as far as the present

dividing line between Georgetown and Groveland. These were of different widths; the boundaries of most of them can now be easily ascertained, and any one acquainted in town can designate with sufficient accuracy the place where the first people lived, and the land they occupied. Although meetings of the settlers were probably held from the beginning, yet the first on record was on the 20th Feb., 1668-9. The name then given was Merrimac, afterwards called Rowley village on the Merrimac; Jan. 7, 1672-3, they voted to take the name of Bradford and incorporated under that appellation about 1675.

The first congregational church was constituted Dec. 27, 1682. Zachariah Symmes, a native of Charlestown and a graduate of Harvard in the class of 1657, was the first pastor, and was succeeded by his son, Thomas Symmes.

On the seventeenth of June, 1726, the town was divided into town parishes and this portion was set off as the East Precinct, and incorporated as a distinct municipality, March 8, 1750, under the name of Groveland.

The first parish meeting was held July 4, 1726; on the 8th of November following, Rev. William Balch was unanimously invited to preach with them; he was born at Beverly in 1704, graduated at Harvard College in 1724, ordained in 1728, and died January 12, 1792, aged 88—a descendant of John Balch, one of the old planters of Salem. He was succeeded by Rev. Ebenezer Dutch, a native of Ipswich, a graduate of Brown in 1776, ordained Nov. 17, 1779, died Aug. 4, 1813, aged 62. Rev. Gardner B. Perry was the third pastor, born at Norton, Aug. 9, 1783, graduated at Union in 1804, settled Sept. 28, 1814, and after a long and useful ministry died Dec. 16, 1859.

Balch's woods, extending along the banks of the Merri-

mac, is a delightful place in which to ramble, especially on a hot day, and to enjoy the beautiful scenery of the river and the opposite shore, with its undulating hills covered largely with wood in some localities, and in others with the city of Haverhill, thriving villages and cultivated fields; here also the naturalist can find much to study in his especial line of investigation. Several eminences nearly in the centre of the village were visited, and presented extensive views and cool and refreshing breezes.

At 1 P. M. the several parties repaired to the lower hall of the new building which was the place of gathering for the day, where the collation was partaken, the citizens furnishing delicious tea and coffee. The divine blessing was invoked by Rev. J. C. Paine of Groveland.

THE AFTERNOON SESSION

was called to order at 2 P. M. in the hall on the second floor. The PRESIDENT in the chair. Records of preceding meeting read:—

The SECRETARY announced the following correspondence:—

Boston Public Library, June 17; Geological Survey of India, Jan. 2; Maryland Historical Society, June 19; New York State Library, June 22; Rhode Island Historical Society, June 28; U. S. Dept. of Interior, June 18; Department of Agriculture, June 17, 20; Vermont Historical Society, July 9; Worcester Free Public Library, June 29; Mrs. W. B. Bannister, Newburyport, July 10; J. W. Foster, Chicago, Ill., June 25; John H. Gould, Topsfield, July 12; L. D. Gould, Boston Highlands, July 11, 13; S. C. Gregory, New York, June 13; C. J. Maynard, Ipswich, July 4; J. Spofford, Groveland, June 21, July 5, 8.

The LIBRARIAN reported the following additions:—

By Donation.

BANNISTER, Mrs. WM. B., of Newburyport. Christian World, 60 numbers. Jewish Chronicle, 10 numbers. The Israelite Indeed, 43 numbers. Panoplist, 19 numbers. Miscellaneous pamphlets, 112.

BUTLER, BENJ. F., M. C. Carpenter's Speech in U. S. Sen., June 3, 1872. Logan's Speech in U. S. Sen., June 3, 1872. Flanagan's Speech in U. S. Sen., June 1, 1872.

DEPARTMENT OF THE INTERIOR, WASHINGTON, D. C. Reports of Commissioners to Paris Exposition, 2nd Sess., 40th Cong., 1867-8, 6 vols. 8vo. Senate Documents,

2nd Sess., 40th Cong., 1867-8, 1 vol. 8vo. Reports of the Committees of the House of Reps., 31 Sess., 40th Cong., 1868-9, 1 vol. 8vo., 2nd Sess., 41st Cong., 1869-70, 3 vols. 8vo. Patent Office Reports, 3d Sess., 40th Cong., 4 vols. 8vo. Senate Reports, 2nd Sess., 41st Cong., 1869-70, 1 vol. 8vo. Senate Journal, 2nd Sess., 41st Cong., 1869-70, 3 vols. 8vo. Commerce and Navigation, 1869-70, 1 vol. 8vo. Report of the Department of Agriculture, 1869-70, 1 vol. 8vo. Executive Documents, 2nd Sess., 41st Cong., 1869-70, 1 vol. 8vo. Mines and Mining, 1869-70, 1 vol. 8vo. Report of the Finance Committee, 1869-70, 1 vol. 8vo. Report of the Secretary of the Interior, 1869-70, 1 vol. 8vo. House Journal, 1869-70, 1 vol. 8vo. Report of the Secretary of the Navy, 1869-70, 1 vol. 8vo. Senate Journal, 1869, 1 vol. 8vo. Senate Documents, 1869, 1 vol. 8vo. Report of the Secretary of War, 1869-70, 1 vol. 8vo. Senate Reports, 1869, 1 vol. 8vo. House Miscellaneous, 1869, 1 vol. 8vo. Claims of U. S. against Great Britain, 1869, 5 vols. 8vo.

FOLGER, WM. C., of Nantucket. Report of the Town of Scituate, Mch. 1871-Feb. 1872. Report of the Selectmen of the Town of Marshfield, 1872.

HOTCHKISS, SUSAN V., of New Haven, Conn. Fifteenth Annual Catalogue of the Offices and Students of the University of Rochester, 1874-5.

MUDGE, ALFRED, of Boston. Genealogy of the Mudge Family in America from 1638-1878 by donor, 1 vol. 8vo. Boston, 1868.

WESTON, DAVID. Miscellaneous pamphlets, 11.

WILDER, M. P., of Boston. Proceedings of the 30th Sess. of the American Pomological Society held in Richmond, Sept. 6, 7, 8, 1871, 4to pamph.

By Exchange.

GEOLOGICAL SURVEY OF INDIA. Observations on the Geology and Zoology of Abyssinia, 1 vol. 8vo. Records of the Geological Survey of India, Vol. iv, Pts. iii, iv, 2 pamphlets, 8vo. Memoirs of Geological Survey of India, Ser. vi, vii, 1871, 2 pamphlets, 4to.

NEW YORK GENEALOGICAL AND BIOGRAPHICAL SOCIETY. Record of, for July, 1872.

PHILADELPHIA ACADEMY OF NATURAL SCIENCES. Proceedings of, Part iii, Oct., Nov., Dec., 1871.

PUBLISHERS. American Naturalist. Essex County Mercury. Hardwicke's Science Gossip. Haverhill Gazette. Ipswich Chronicle. Land and Water. Lawrence American. Little Giant. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Sailors' Magazine and Seamen's Friend. Salem Observer. Silliman's Journal. Western Lancet.

The SUPERINTENDENT of *Museum* reported the following additions to the Historical Collection :—

CRAIG, MRS. SAM'L. A bottle with "C. B. 1715" stamped on it.

LITTLE, WM., of Newburyport. A old fashioned Mirror.

MUDGE, ALFRED, & SON, of Boston. A complete set of the Jubilee programmes, 1872.

U. S. OFFICE OF THE CHIEF SIGNAL OFFICER. Washington, D. C. Three copies of the daily weather Maps.

JAMES B. STONE. A pair of overshoes worn about the period of the Revolution.

L. H. Frary of Middleton, W. F. Southard, W. W. Kelman, Jr., and George K. Proctor, all of Salem, were elected resident members.

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 4. SALEM, MASS., AUGUST, 1872.

No. 8.

One Dollar a Year in Advance. 10 Cents a Single Copy.

FIELD MEETING AT GROVELAND, TUESDAY, JULY 16, 1872.

[*Continued.*]

THE PRESIDENT in his opening remarks alluded briefly to his first visit to Groveland, then the East Parish of Bradford, on Thursday, the 21st of September, 1837, a beautiful autumnal day, in company with a few friends, to attend a horticultural exhibition in the hall of the Merrimack Academy, and a meeting of the Essex County Natural History Society.

The collection of flowers was very fine and tastefully arranged, contributions were received from the gardens of the village and also from those of Salem, Newburyport, Haverhill and other towns. The attendance from the vicinity was large, the agricultural and other occupations being fully represented. A pleasing feature of the occasion was the appearance of the grounds* of the Academy

* The ground in front of the Academy was then a flower garden, wholly managed by Mr. Morse and his pupils, which, though entirely open and exposed, knew not the loss of fruit or flower!

laid out as a beautiful garden under the superintendence of Mr. Sylvanus Morse,* the Principal, for the amusement and gratification of the scholars, who not only culled from its gayly attired borders many choice flowers, but also gathered from the fields and woods, gerardias, asters, fringed gentians and many other attractive and showy flowers that add so much to the beauty of autumnal scenery. There was a goodly display of fruit and vegetables arranged on the tables. The exhibition indicated the great zeal in horticultural pursuits which was fostered by Mr. S. Morse, and Rev. G. B. Perry,† the pastor of the parish church. Both have passed away, but their memories survive and will long be cherished, the one as the faithful and beloved teacher, the other for the great interest which he always took in the various movements for the promotion of education, temperance, horticulture and other objects that tend to the general culture of the people, in addition to his usual professional duties which were always cheerfully and very acceptably performed.

In the afternoon a meeting of the Natural History Society, since incorporated as the Essex Institute, was held, Rev. G. B. Perry, one of the Vice Presidents, in the chair. The objects of the Society being fully stated called

*SYLVANUS MORSE, son of Joseph and Sophia [Bigelow] Morse of West Boylston, Mass.; born June 30, 1798; graduated at Brown University; married Harriet N., daughter of Dr. Jenks, of North Brookfield. He commenced teaching in Groveland in 1828 and continued for fifteen years, thence went to West Boylston and afterwards to Middleboro, Mass., where he died in 1871. His wife died in 1872 and both were buried in the cemetery at Groveland.

†Rev. GARDNER BRAMAN PERRY, D. D., son of Nathan and Phebe [Braman] Perry, was born at Norton, Mass., Aug. 9, 1783. In June, 1800, entered Brown University, continued there two years, and then went to Union College, where he graduated in 1804. For several years principal of Kingston Academy. Sept. 28, 1814, ordained at Bradford [Groveland] and was the sole pastor until 1834, when a colleague was appointed; he sustained the pastoral relation to the church until his death, which occurred December 2, 1859. He married, first, Maria P. Chamberlain of Exeter, N. H.; second, Eunice Tuttle of Acton; third, Sarah Brown of Groton, who survived him.

forth remarks from the presiding officer, the Secretary and others.

In the evening an instructive lecture was delivered in the church by the President of the Society, Dr. Andrew Nichols of Danvers,* "On the Advantages of the Study of Nature," which closed this interesting day.

After mentioning the meetings of the Institute held in this place in September, 1859, and June, 1860, and the cordial receptions extended on these occasions, he called upon Mr. E. S. Morse to give some account of his observations during the forenoon's ramble.

Mr. E. S. MORSE of Salem, after a few remarks on the findings of the day, gave a description of the insect which is the cause of the froth found on grass. This froth goes by the name of frog spit, and is supposed by many to be made by frogs, while others are aware that the substance in question is made by insects, but suppose the insects to be young grasshoppers. They are quite different from the grasshopper, belonging to an entirely different order. The creature causing this froth matures into a little wedge-shaped bug called leaf hopper, an hemipterous insect, the *Ptyelus lineatus* of Fitch. The eggs are deposited in the autumn, and are hatched in the following summer. In their larval or immature condition only are they surrounded by this frothy substance. It has been stated that these insects excrete their frothy covering, whereas they excrete a clear liquid, and blow it up afterward. This they accomplish by reaching out of the fluid their posterior segments and clutching, as it were, a drop of air, which they drag within the fluid holding it for a while against the under surface of the

* See page 89 of this volume; also Proceed. Essex Inst., Vol. i, page 49 and Vol. ii, page 26.

body, and then allowing it to escape in the fluid. This, repeated many times, converts the fluid into froth.

Dr. JEREMIAH SPOFFORD* was the next speaker. He retains his vigor in a remarkable degree for one who has reached fourscore and four years, and in his remarks gave an interesting account of the academy of which he was one of the founders, as follows :—

MERRIMACK ACADEMY.

Merrimack Academy originated in repeated conversations between the Rev. Dr. Perry, then pastor of this church, and myself, who now, after the lapse of half a century have devoted much of my time and care during the last year to rebuilding its ruined walls, destroyed by fire in September, 1870.

Dr. Perry and myself had then numerous families, in need of better advantages than the place afforded, and others were in the same situation, and some of us not well able to incur the expense of maintaining children at distant schools. These conversations resulted in the drawing up a paper by myself, which was headed by Mr. Perry, and followed by Dr. Benjamin Parker,† Capt.

* JEREMIAH SPOFFORD, son of Jeremiah and Temperance Spofford, was born at New Rowley [Georgetown] Dec. 8, 1787; married, Oct. 11, 1813, Mary Ayer, daughter of Deacon Eleazer and Mary [Flint] Spofford, of Jaffrey, N. H. First settled in Hampstead in 1813, a physician, and removed in 1817 to East Bradford, now Groveland, where he now resides, having continued in the practice of his profession fifty-five years. Author of a *Gazetteer of Massachusetts*, “*Reminiscences of Seventy Years*,” a *Spofford Genealogy*, etc.

† BENJAMIN PARKER, son of Bradstreet and Rebecca [Baleh] Parker, was born at Bradford [Groveland], Nov. 11, 1759; graduated at Harvard College in 1782; Dartmouth in 1812 conferred upon him the honorary degree of M. D. He practised medicine in Virginia about twenty years and returned to his native town in 1809, where he resided until his death, which occurred May 12, 1815. Married Hannah Moulton of Hampstead, N. H., in 1816; three sons.

George Savary,* Moses Parker, Esq., † William Greenough‡ and others, promising to pay certain proportions or shares, in the erection of a building for academy purposes.

The building was raised July 4, 1821, was finished and occupied for a school in November of the same year, consisting of about twenty-five scholars, male and female, mostly, but not wholly, of this place.

Mr. Stephen Morse, § a native of the town and graduate at Dartmouth, was the first teacher, with a female department during the two summer terms, first taught a few weeks by Miss Harriet Wood, || but most of the time of those and the two succeeding summer terms of the next year by Miss Mary Frothingham ¶ of Newburyport, afterwards the wife of Rev. William Withington.

The school was no sooner in operation than application was made to the legislature for an act of incorporation, which was obtained, incorporating Rev. Gardner B. Perry, Dr. Benjamin Parker, William Greenough, Esq., Dr.

* CAPT. GEORGE SAVARY, son of Major Thomas and Polly [Rollins] Savary, was born January 30, 1793, at Bradford [Groveland]. A boot and shoe manufacturer and trader; representative and senator of Massachusetts legislature. Married Louisa, dau. of Benjamin Balch of Salem. Died at Groveland, March 28, 1854.

† MOSES PARKER (son of Bradstreet and Rebecca [Balch] Parker) was born April 20, 1756. Trader and ingenious mechanic; did much for the academy and town. Died July 9, 1837.

‡ WILLIAM GREENOUGH, son of William; a trader and farmer; representative of Massachusetts legislature; born at Bradford [Groveland] Oct. 25, 1763; married Abigail Parker (sister of Benjamin Parker); died Oct. 7, 1851.

§ REV. STEPHEN MORSE, son of Deacon Thomas and Rebecca [Cole] Morse, was born at Bradford [Groveland], Feb. 24, 1794; graduated at Dartmouth College, 1821; at Andover Theological Seminary, one year; married Martha, daughter of Dr. Jona. Kittredge of Salisbury; settled in the ministry at Merrimac and Troy, N. H., Biddeford, Me, and at Post Mills, Vt. In 1847, on account of ill health, retired to Thetford, Vt., where he died May 22, 1855.

|| HARRIET WOOD, daughter of Abner Wood of Newburyport.

¶ MARY FROTHINGHAM of Newburyport; a successful teacher; married Rev. William Withington, an Episcopal minister of Dorchester; died young.

Jeremiah Spofford, Ebenezer Rollins,* Phinehas Parker, † Capt. George Savary, and Capt. Samuel Tenney. ‡ Rev. Elijah Demond§ was named in the act, but declined the trust. Mr. Stephen Parker|| was elected trustee in 1824. Dr. Perry was president of the board thirty-five years, till his death; Dr. Spofford was secretary about twenty years, and president after Mr. Perry. Capt. Benjamin Parker,¶ elected trustee, was secretary and treasurer nearly thirty years.

The school did not entirely sustain itself, in its early years, but all deficiency was made up by an annual assessment upon the trustees, resident in town, and on one occasion one hundred and forty dollars were paid, at an evening session, to square accounts, by a voluntary contribution by them alone.

Rev. David L. Nichols** was preceptor about two years. His health failing, Mr. John C. March, afterwards

* EBENEZER ROLLINS, son of Eliphalet and Patty [Sargent] Rollins; merchant in Boston.

† PHINEHAS PARKER, son of William and Hannah [Hardy] Parker; born at Bradford [Groveland] Dec. 3, 1783. In early life went into business in Boston; in 1827 retired and removed to Newburyport, and died at that place Oct. 7, 1850.

‡ Capt. SAMUEL TENNEY, son of Solomon and Betsey [Savary] Tenney, born Feb. 21, 1764; died April, 1828.

§ Rev. ELIJAH DEMOND, son of Israel Howe and Hannah [Henry] Demond, born at Rutland, Mass., Nov. 1, 1790; graduated at Dartmouth College in 1816; studied at Andover Theological Seminary; settled in the ministry at West Newbury, Lincoln and Princeton; married Lucy, daughter of Aaron Brown of Groton and has resided at Westborough, Mass.

|| STEPHEN PARKER, son of Daniel and Abigail [Bailey] Parker, born Nov. 11, 1783; married Mehitable, daughter of Wm. Palmer; a boot and shoe manufacturer and trader; representative of Massachusetts legislature; died Aug., 1891.

¶ Capt. BENJAMIN PARKER, son of Stephen Parker; trader fifty years; married Anne, daughter of Barker Lapham.

** Rev. DAVID LOWELL NICHOLS, son of Stephen and Martha [Robinson] Nichols, born at Amesbury, Mass., Apr. 12, 1791; graduated at Dartmouth College in 1816; teacher at Richmond, Va., Groveland and other places; studied divinity and was ordained but never settled on account of ill health; died at Kingston, April 22, 1829.

Rev. John C. March* of Belleville, succeeded in 1825, during one year. Dr. Alonzo Chapin, † afterwards missionary at the Sandwich Islands, and now physician at Winchester, Mass., taught one year. John Tenney, Esq., ‡ afterwards an attorney at Methuen, taught one term.

Mr. Sylvanus Morse, A. B., of West Boylston, commenced his valuable service in November, 1827, and sustained the school upon its own resources till April, 1844, seventeen years. Mr. Morse's long term was a great benefit to this institution and to the town, nearly all the children of the founders of the institution, and almost a whole generation of the young people of the town passed more or less time under his tuition, and were influenced by his wise instruction and gentle manners. Nor was the time passed here less pleasant to himself—his attachments were strong. It was his misfortune to lay his first-born son in our cemetery, and by their preference and direction, the earthly remains of himself and his amiable wife have been recently brought from a distant residence to rest by his side.

Mr. Benjamin Greenleaf, § many years preceptor of

* Rev. JOHN CHARLES MARCH, born at Newburyport, Oct. 9, 1865; graduated at Yale College, 1825; settled over the Second Church in Newbury [Belleville Parish], March, 1832, and continued as the pastor until his decease in September, 1846.

† Dr. ALONZO CHAPIN, a student of medicine; for several years a missionary at the Sandwich Islands; now physician at Winchester, Mass.

‡ JOHN TENNEY, son of Shubael and Mary [Jameson] Tenney, born at Dunstable, Sept. 12, 1799; graduated at Dartmouth College, 1821; counsellor at law in Methuen; senator in Massachusetts legislature and executive councillor; married first, Mary Augusta, daughter of Bailey Bartlett of Haverhill; second, Augusta, daughter of Joseph and Lucy [Osgood] Sprague of Salem; died April 9, 1853.

§ BENJAMIN GREENLEAF, son of Caleb and Susannah [Emerson] Greenleaf, born in the West Parish of Haverhill, Sept. 25, 1786; graduated at Dartmouth College, 1813. He resided at Bradford and was for many years a successful teacher and author of a series of arithmetics which for many years were largely introduced into the schools of New England and other states. He represented Bradford in the Massachusetts legislature in 1837, 1838 and 1839. He married Lucretia, daughter of Col. James Kimball of Bradford. He died Oct. 29, 1861.

Bradford Academy, kept one term, during the sickness of Mr. Morse, with much approbation.

Mr. Rufus C. Hardy,* a graduate of Dartmouth, sustained a useful and reputable school here from April, 1848, to 1860, upon the tuition received, which tuition was from three to five dollars a term, of three to four months, or less than twelve dollars a year, a small expense compared with the extra expense of board and travel, in supporting scholars at the distant schools, for which the public money is expended; in addition to losing the privilege of parental superintendence of children at home.

Miss Mary S. Frothingham, before named, Miss Sophia Perry,† sister of Rev. Dr. Perry, Miss Judith D. Peabody,‡ sister of the London banker, and Miss Hannah Parish,§ daughter of Rev. Dr. Parish, were successively and successfully employed in a separate female department till February, 1829, when, by vote of the trustees, a separate female department was discontinued. The town was much indebted to Mr. Hardy, and his sister, Miss Emeline Hardy,|| now deceased, for sustaining a highly useful school here for more than ten years.

During the successful operation of this academy it sent forth more than one thousand pupils, and we could often

* RUFUS CHANDLER HARDY, son of Phineas and Olive [Parker] Hardy, born at Bradford [Groveland] Feb. 18, 1814; graduated at Dartmouth College, 1812. He commenced teaching in the academy in 1818, and continued with success for ten years, living at the old homestead.

† SOPHIA PERRY, sister of Rev. Dr. Perry of Groveland.

‡ JUDITH DODGE PEABODY, daughter of Thomas and Judith [Dodge] Peabody, of Haverhill and Danvers, a sister of George Peabody, the distinguished London banker; born April 5, 1799; married, first, Jeremiah Russell of Georgetown, and second, Robert S. Daniels of Danvers; resides in Georgetown.

§ MISS HANNAH PARISH, dau. of Rev. Dr. A. Parish of Newbury.

|| OLIVE EMELINE HARDY, a sister of Rufus C. Hardy, was a graduate of and an assistant in the academy two years and teacher in the town schools nearly twenty years; died in 1871, aged 51.

count ten to thirteen of its graduates, natives of the town, in business as successful teachers, in this and the neighboring towns; * with a corresponding elevation of the habits and manners of the population. Now, with an amount spent for town schools fourfold what it then cost for them and the academy, in the vain attempt to make learned gentlemen and ladies of the whole community, we hear of no teachers from our town schools, and have a deterioration in our manners and morals which I have no disposition to portray.

The academy stood, and was useful for short terms of schooling and social purposes, till September, 1870, when it was destroyed by fire.

To the speaker, who then stood and now stands alone of the original board of trustees, and who had in younger life expended his utmost energies for its erection and support, and experienced and witnessed its usefulness, this was a sad and sickening sight.

Capt. Benjamin Parker was early elected a trustee, and in 1827 secretary and treasurer, and though an octogenarian like myself, and confined by sickness, has, by his counsel and his vote, rendered essential aid in the re-occupation of this spot, so dear to the memory of a thousand of its alumni and their friends, with a building, larger than its predecessor, in which we have the pleasure of meeting you this day, for scientific purposes, instead of the solitary visit of some of you, who may remember its schools, its lectures, its exhibitions, and its

* In this connection mention may be made of the valuable services of Miss Apphia Spofford, a teacher for fourteen years, and Miss Sarah Tenney, a teacher for twenty years in the public schools of this and other towns. The first is sister of Dr. Jeremiah Spofford, born July 1, 1795; married Amos J. Tenney, Esq., of Georgetown; at that town she now resides, his widow. The second is daughter of William and Abigail [Jaques] Tenney, and is now a much respected inhabitant of this town.

flower garden, to cast a melancholy look over its dust and ruins.

Our pupils, having been largely of the class who had talents and energy to educate themselves, have given a high average, and we have known of no failure, among the large number who have gone forth to honorable stations, in all the professions; and we have yet to learn if the high schools, which are supported by taxation, in all the large towns, with a view to giving a scientific and classical education to the whole population, are furnishing us as many, or as talented teachers as flowed out spontaneously from the four thousand pupils of our seventy academies, without cost to anybody but themselves, twenty years ago. Our self-made men have always held honorable competition with the sons of affluence, or the protégés of the State; and it is yet doubtful whether academies, accessible to all who had taste and talent, to work their own way to learning and business, were not better than high schools for a whole population, upon free cost, and half a dozen schools, remote from a great part of the state, furnished with palatial buildings, and all the modern conveniences that a state's wealth can purchase!

Mr. JAMES H. EMERTON of Salem, mentioned several cases of protective colors and habits in spiders which he had seen in the grove during the morning walk.

The common *Epeira caudata* of Hentz, covers the remains of its prey and other rubbish with loose silk and arranges them in a line across the web, with room enough at the centre for the spider, who draws her feet close to her body, showing only the brown and gray abdomen, which can hardly be distinguished from the dirt around it.

A specimen of *Attus* was caught on dried oak leaves, in the woods, colored almost the same shade of brown,

mixed with black ; which, when it was still, could hardly be found among the leaves.

Another curious spider, of which three specimens were found, had the abdomen prolonged beyond the spinnerets, much as in *E. caudata*. Its color was brownish-yellow, with darker marks, like dried grass, and it hung in the web with its legs laid close together, and bent in front of the head, looking like a bit of straw accidentally dropped in the web.

MESSRS. ABNER S. PHIPPS, the agent of the State Board of Education, and D. B. HAGAR, principal of the State Normal School in Salem, being invited, made short addresses upon the utility of a knowledge of the natural sciences, combining in good proportions wit and wisdom.

REV. S. C. BEANE of Salem spoke of the system of compulsory education as sometimes not effecting its object if there were wanting in the towns a disposition to carry out the spirit of the law, and mentioned some of the advantages that accrued from the academies which were in a flourishing condition some years since, and were located in many of our rural towns.

REV. E. C. BOLLES of Salem described the various mosses that were noticed in the rambles, illustrating the subject on the blackboard, as had also Messrs. Morse and Emerton. Mr. Bolles was quite eloquent in showing the perfection of nature in all her works, manifesting the absolute perfection of the Creator in all his attributes.

MR. LA ROY F. GRIFFIN, principal of the Phillips Academy, Andover, spoke of the interest he had long felt in the Institute, dating back to the time when he was

at Beverly, and expressing high appreciation of the influence of the Institute in the cause of popular education. He exhibited a specimen of coral which he had picked up in Beverly. The chair suggested that it was probably found near the site of an old lime kiln, similar specimens having been found in like places in Salem. The coral was probably brought from the West Indies by the traders on the return trips and was burnt with shells and other materials containing lime collected on the beaches and elsewhere for the lime that was used for building purposes during the provincial period.

MR. GOLDSMITH, principal of the Andover High School, followed with a few words expressive of the importance he attached to such organizations in the interests of useful knowledge.

MR. C. H. WEBBER, after a few preliminary remarks, offered the following resolution, which was unanimously adopted.

Resolved, That the thanks of the Essex Institute are due and are hereby tendered to Dr. Jeremiah Spofford, Dr. Morris Spofford, Rev. John C. Paine, Messrs. Chas. Stickney, D. H. Stickney, Eldred S. Parker, George P. Carlton, O. B. Merrill, B. E. Merrill, Frank Savary, Charles Drew, N. Hopkinson Griffith, Jos. H. Hopkinson of the Dewhirst line of Haverhill & Groveland Omnibuses, Mrs. Martha W. Parker, Mrs. Moses P. Atwood, Miss A. T. Spofford, and all others who have been active in making our visit to-day so pleasant and profitable.

DR. SPOFFORD and Rev. Mr. PAINE of Groveland responded, saying that they were grateful to the party for the visit, and trusting that it might serve to awaken and perpetuate in their locality a deeper love for natural history and scientific attainment.

The visitors took the return train at 5.08, entirely escaping the drenching rain which soon commenced falling, and which fortunately ceased before their arrival at Danvers. While awaiting the Lawrence train for Salem, a beautiful rainbow appeared in the eastern heavens, awakening those hopeful emotions always inspired by the bow of promise.



THE FIRST WHITE HAMBURG, AND THE FIRST MUSCAT OF ALEXANDRIA GRAPE-VINE IMPORTED INTO THE UNITED STATES.—

COMMUNICATED BY JONES VERY.

In the year 1822, Capt. Jones Very, of Salem, brought to Boston from Malaga in the *Barque Aurelia*, with a cargo of fruit and wine, two grape-vines; a White Hamburg, and a Muscat of Alexandria, or Royal Muscadine. These were then about two inches round, and were rooted in two large green earthen vases. It was his intention to keep them; but finding it inconvenient, he sold them to a neighbor, Mr. William Dean, living on the opposite side of the street (Essex St., opposite Bullum's Corner), who had just built a greenhouse. Under his care they grew, and have been very productive ever since. The last year 1871, the grapes were very abundant and large. The White Hamburg is now, 1872, fourteen inches round about two and a half feet from the ground, where it divides into two branches, each seven inches round. The Muscat is seven inches round about two and a half feet from the ground, where it branches. These two vines, as I have been informed by J. F. Allen, Esq., are the parent vines of all of these two kinds in this country, being the first imported into the United States. The estate of Mr. Dean is now owned by Mr. George W. Varney.

FIELD MEETING AT ANNISQUAM, THURSDAY,
AUGUST 8, 1872.

A PLEASANT, warm summer's day, so congenial and appropriate for a visit to the seashore, where can be enjoyed the cool and refreshing breezes of the ocean, induced many to accompany the Institute on this excursion to the rock-bound coast of Cape Ann. After a pleasant ride in the cars to the Gloucester station, and thence by carriage some four or five miles, the party arrived at the place of meeting in Annisquam, a parish of Gloucester on the north side of the Cape.

The latter portion of the trip was exceedingly interesting and attractive, passing over a road abounding in rich and varied scenery and in many places highly picturesque; huge masses of rock, with small patches of green verdure interspersed, were conspicuous; the little brown, weather-stained, moss-covered cottages, that thirty years ago were marked features in the landscape, are giving place to a more substantial and commodious class of structures with all the appendages of the new and improved residences; thus indicating that the inhabitants are prosperous and turning their attention to a less precarious employment. From an early period the fisheries have been carried on with varied success at several points on the Cape, around which have clustered villages of considerable extent; although in this section the business has declined, yet the increased attention in others, especially at the "Harbor," has made Gloucester the most important fishing place on the continent.

The introduction of the stone business, which commenced at Pigeon Cove in 1824, and has, in a great degree, superseded the fisheries, effected this change and has

largely contributed to the wealth and prosperity of this people. Many companies have been formed, and from Sandy Bay to Amisquam, a distance of six miles, huge derricks thickly stud the landscape, and the sharp click of the drill hammer has become a familiar sound. The attention of the summer tourist to the seashore has had a corresponding influence in this direction. Many of the retired and secluded spots on the shores of this county have been appropriated for private residences, and others are gradually being taken up for similar purposes. In this immediate neighborhood the stone mansion of Gen. B. F. Butler at Bay View is conspicuous. Many summer visitors were in this place to pass the hot term—they come literally in swarms, not only from the inland cities and towns of New England, but from New York, the West, and a few from the South. Many of the families camp out by the shore in tents, while others are beginning to have their "cottage by the sea." The natural curiosities of this place, the woodland attractions, the rides, embracing some of the grandest sea views in the world, the shores generally high and bold, with fine beaches in many places, the bracing and invigorating air—these combined make this place a very desirable resort, in the summer season, to the invalid, the tourist and the pleasure seeker; at other seasons to the sportsman for its sea fowl, gunning and fishing; and at all times to the naturalist for its marine fauna and flora, its peculiar geological formation and fine minerals found in the seams exposed during the process of quarrying.

Mechanic's Hall, at Squam Point, was the place of rendezvous for the day, where, on arrival, an informal meeting was held, a cordial welcome extended, and arrangements made for the various excursions. Some rambled over the hills and on the shore, as inclination dictated; some

enjoyed a pleasant sail in the harbor (several boats near by were made available and brought into requisition); others crossed over to Coffin's beach and farm on the West Gloucester side to visit the beach and the rocky cliffs upon which the sand had been blown and had given them, at a little distance, the appearance of sand hills, and also to look for Indian shell heaps, usually found in similar localities. In former times this opposite shore was a mass of dense woods; but they have been cleared away and these sand heaps now give a variety to what was formerly hills of grass and other vegetation. The views from the high lands were very extensive and very enjoyable; Coffin's Beach, Castle Neck and Plum Island, at the head of Ipswich Bay, were seen stretching away to the northwest, but owing to a haze in the horizon Agamenticus and the Isles of Shoals, which are usually visible from Lookout Hill, could not be seen. There is also a curious trap dyke leading from one of the camping houses and within a few minutes walk of the place of rendezvous.

A little past noon the various parties began to reassemble in the hall to partake of their lunch, the people of the village having kindly provided a bountiful supply of tea and coffee, and extended other civilities, which were gratefully received; afterwards adjourned to the Universalist Church at the head of the Cove, where the public meeting was held, commencing at 2 P. M.

(To be continued).

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 4. SALEM, MASS., SEPTEMBER, 1872. No. 9.

One Dollar a Year in Advance. 10 Cents a Single Copy.

FIELD MEETING AT ANNISQUAM, THURSDAY,
AUGUST 8, 1872.

[*Continued.*]

THE PRESIDENT in the chair. Records of preceding meeting read.

THE PRESIDENT in his opening remarks alluded briefly to the objects of the Institute, the origin of the field meetings, the opportunity offered thereby to gather information, from every part of the county, of historical and scientific value, and also to awaken an interest for these pursuits in the several places visited. He mentioned that two meetings the present season had previously been held: one at Middleton, an inland town diversified with hills and dales, with many by-paths skirted with shrubbery and flowering plants, with pleasant ponds and running streams; on the shores of one of these ponds known as Forest Lake was the rendezvous for the day; the other at Groveland, on the banks of the Merrimac, with the

beautiful grove on the river banks, hence its name, and fine views from the several eminences in the centre of the town. He said that this day they had come to the seashore, the rock-bound coast, lashed in the wintry months with the tempestuous waves, and that in the summer the calm and placid waters, the cool and refreshing breezes rendered it a most delightful retreat; that here another field was opened for their inspection, the marine fauna and flora, and the peculiar geological formation of this part of the coast.

The speaker reminded them that they had come to a new place, not newly settled but new to most of them, and in common with the members of the Institute he had found much enjoyment in visiting these new scenes and attractions.

Mr. F. W. PUTNAM of Salem was called upon and made some interesting remarks founded on two specimens which he had collected during his rambles in the forenoon.

INDIAN SHELL HEAPS.

He said that he had taken a boat and visited Coffin's beach and the sand hills adjacent, with the hope of discovering some of the Indian shell heaps which are frequently found along the New England coast, often buried beneath the sand drifts, and uncovered at other times by the shifting of the sand. He had found but one such at Coffin's farm as the excessive heat prevented him from continuing his search. From this one he had obtained a small piece of Indian pottery, which was passed round and exhibited to the audience. He said this was a piece of an ornamented pot, as was shown by the groove across it, and from the curvature of the piece it must have been a part of a small vessel. Some of these pots were

eighteen inches in diameter, and others quite small. The Indian pottery was composed of clay and pounded clam shells, and dried in the sun at first, though afterwards, as they were used for cooking purposes, they had the appearance of having been baked. These shell heaps also contained axes, gouges, arrow-heads and other stone implements, and particularly interesting was a kind of fish spear made of bone. There was also found a kind of awl made of bone, finely pointed and used by the Indians for making holes in skins, etc. By an examination of the kitchen refuse heaps of the Indians, it could be determined pretty accurately the kinds of animal food that were used by them. Bones of the deer, moose, and the other animals once common to this part of the country, had been found; also the black bear, and in one instance a tooth of a white bear, which indicated that though this animal is an inhabitant of the arctic regions, he might have been occasionally found, in times long past, in these latitudes. In all, the bones of some ten or twelve of the different kinds of mammalia had been found in these refuse heaps. The bones of a bird now extinct, as is believed, the last known specimen having been taken in Greenland, the great auk, had been found. This bird was of a heavy build and incapable of flight. Of the fish, the Indians used all the common kinds here taken, and they also consumed large quantities of the fish known as the wolf fish, devil fish, or monk fish, which we regard as unfit for food. More than two-thirds of the fish bones found in many of these Indian refuse heaps were of this species.

EGG CASE OF THE SKATE.

Another interesting specimen obtained by him was the egg case of one species of the skate. This is found on

our beaches and is supposed by many persons to be a kind of sea plant, being black and of the texture of dried rockweed. In shape it very much resembles a hand barrow and one of its common English names is derived from this resemblance. This case is formed in the oviduct of the fish, and unlike the process in other oviparous animals, where the shell is the last part of the egg produced, this case or shell is in part formed before the egg is deposited in it. The egg, enclosed in the case, is then laid and becomes attached to various substances by means of filaments extending from the projections or tubes of the case. After a while the young skates are hatched, when the empty shell is driven on shore. Many of the skates lay eggs of this character, others are viviparous. The common dog fish, which is a species of shark, is viviparous, and produces five or six young in a perfect state at a time. Some of the larger species of sharks are oviparous, others are viviparous. Mr. Putnam's remarks were listened to with much interest, many of his facts being new to a large portion of the audience.

HISTORICAL NOTICES OF THE THIRD PARISH AT ANNISQUAM.

Rev. E. W. COFFIN, of Orange, Mass., a former pastor of the society at Annisquam for the term of five years, was next called upon to give a short sketch of the history of the society. He said that Mr. Hooper, the present pastor, having been notified that it would be desirable for him to give the meeting some information concerning the rise and progress of the Parish in whose church they were to assemble, and having made arrangements, which he could not change without great inconvenience, to be absent on his summer vacation at the time of holding the meeting, had requested him to supply the desired information. He had, when pastor of the society, prepared and

delivered two discourses on its history, but as he did not have them with him at this time, he could only avail himself of the matter contained in them, as far as his memory could serve him, and he might make some mistakes. This was originally the third Congregational Parish in Gloucester, the one in the harbor being the first, and the one in the West Parish being the second. The first minister settled over the parish was Benjamin Bradstreet, who was settled in 1728, and continued pastor till his death in 1762. He had a numerous family, and one of his daughters married James Day, a resident of this village, and some of their descendants are living in this neighborhood at the present time. From the best information he (Mr. Coffin) could obtain, he believed that the first meeting house, which probably stood near the old burying-ground at Bay View, was burned, and that on the question of building another a division arose as to the location, some of them wishing to rebuild on the old site, and some on the site of the present church, and that at a meeting of the Parish it was decided by a majority to build on the old site, and that the frame of the building was prepared and placed on the spot preparatory to raising it the next day. But when the people came to the raising the next morning they found no frame there, the friends of the present location, having, during the night, removed the whole of the timber to this site. This action settled the question as to location, and the meeting house was built on the place where this church stands, and here it stood till 1830, when it was replaced by this structure. Rev. John Wyeth was the next minister; he was settled in 1766, but remained only two years. The parish could not be called minister worshippers, as might be judged from their peculiar way of hinting to Mr. Wyeth their desire for a change: once a musket ball was fired just

over his head, and his black horse, during one night while in the pasture, changed color by a liberal application of whitewash. The pastor finally took the hint and left, stopping at the top of the hill, and shaking the dust from his feet as a testimony against them. The next minister was Rev. Obadiah Parsons, who was an eloquent man, and his pulpit services were very acceptable. Stories were circulated discreditable to his moral character, however, and he was finally dismissed. It is related that at the council called to consider his case, the principal witness against him was a colored woman, and the question arising whether the testimony of a colored person should be received, it was decided at that early day not to receive the same. The church remained without a pastor until the Rev. Ezra Leonard, who is and ever will be held in high veneration by the people of Squam, was settled in 1804, and remained pastor till his death in 1832. A remarkable change took place during his administration, he publicly embracing the doctrine of Universalism in 1811, carrying the whole society with him, with the exception of four or five families. In announcing this change of views, he preached a Universalist sermon, and told them he believed this doctrine, and must preach it if he preached at all. The parish voted to retain him until his year expired, and in the following March the record says it was voted that "he continue to preach the gospel as usual." Mr. Coffin also gave a short sketch of all the ministers of the parish since the death of Mr. Leonard, but want of space forbids our following his remarks further than giving their names, time of service and brief individual notices.

Rev. Abraham Norwood, one year; Rev. Elbridge Trull, one year; Rev. John Harriman, three years; Rev. Geo. C. Leach, four years; Rev. M. B. Newell, three

years; Rev. J. A. Bartlett, two years; Rev. B. H. Clark, one year; Rev. E. W. Coffin, five years; Rev. Nath'l Gunnison, three years; Rev. E. Partridge, two years; Rev. L. L. Record, three years; Rev. J. H. Tuller, one year; Rev. J. H. Willis, two years; Rev. F. A. Benton, one year: bringing us down to the present pastor, Rev. Mr. Hooper, who was settled in 1871, and whose temporary absence we regret to-day. The church, as a Universalist body, has had fifteen ministers, of whom only seven survive.

Mr. Norwood has been an able and amiable minister, residing now in Conn. Mr. Trull thought he could do better in furnishing medicine for the *body*, and so engaged in the druggist business. Mr. Harriman left the ministry and engaged in secular pursuits, and has been dead many years. Mr. Leach united with, and is now a member of, the Catholic church. Mr. Newell committed suicide about six years ago, in West Brattleboro', Vt. Mr. Bartlett died a few years ago, having previously retired from the ministry. Mr. Clark changed his views while at Annisquam and never preached afterward. Mr. Coffin has ever been, and is now a Universalist minister of the conservative type, and is now settled in Orange, Mass. Mr. Gunnison one of our most able and excellent ministers, died two years ago, in Maine, of paralysis. Mr. Partridge is yet alive, "hale and hearty," although "the almond tree flourishes" to a perfect whiteness. Mr. Record, a most excellent man and minister, left for the higher life two years ago. Mr. Tuller is yet living in one of the western states. Mr. Willis is now settled in North Orange, Mass. Mr. Benton was a young man of brilliant talents and a very good man, but too radical to suit a majority of the parish at Annisquam. He is now preaching to a radical society in the west.

ALLEN W. DODGE, Esq., of Hamilton, was the next speaker. He said he had been introduced as the County Treasurer, but he did not think that circumstance would add much to the interest of his speech. He said if any one had a draft on him in his official capacity, he would pay it at sight, but as to any scientific drafts, he should require several days' grace on them. He said the world regarded the acquisition of wealth as the only true success, but he thought that the young men of this Institute who had been sitting at the gates of the temple of nature, and knocked till they had obtained an answer, and had then given the knowledge thus obtained to the world had attained a higher success. Mr. Dodge's remarks were highly entertaining and valuable, and we regret that space will not permit a more extended abstract of the same.

REV. L. J. LIVERMORE of Cambridge, at present supplying the Unitarian pulpit in Danvers, expressed his appreciation of such organizations as the Essex Institute.

HON. JAMES DAVIS, the Trial Justice of Gloucester, claimed to be a Squamer, and as such he had a right to welcome the excursionists to-day, which he proceeded to express in most cordial language.

HON. J. J. BABSON, of Gloucester, being called upon, gave an interesting

HISTORICAL SKETCH OF ANNISQUAM.

MR. PRESIDENT :—In response to the call upon me for some historical incidents connected with the spot upon which we are assembled, I have merely to observe that such of these incidents as are of general interest are very few. Famous Capt. John Smith, you all know, made the

first exploration of the coast of New England, from Penobscot Bay to Cape Cod, in 1614. Within these limits, according to his own account, he "sounded about twenty-five excellent, good harbors," but whether the one some of you have sailed upon to-day was included in the number or not, no one can tell. From the hills you have looked out upon "Augoam" and the great bay "north of the fair headland Tragabigzanda." We must rejoice that this name, notwithstanding the romantic interest connected with it, was soon changed for that of Ann, queen of James I. The name Squam is an Indian word, first occurring in print, so far as I know, in William Wood's map of Massachusetts, drawn in 1633, where it is spelled Wonasquam. It also occurs in Winthrop's Journal, under the year 1635; and at a little later date in Josselyn's "Account of Two Voyages to New England." He spells it Wonasquam, and calls it "a dangerous place to sail by in stormie weather, by reason of the many rocks and foaming breakers."

The scenic features of this locality are very noticeable; and, considering the rugged character of its surface, it is hardly surprising that eighty-six years elapsed after the incorporation of the town before a sufficient number of inhabitants were found on it to set up a distinct parish organization. Of this, and its ministers, Mr. Coffin, one of the number, has just given us an interesting account. He might, if time had permitted, have enlarged much upon the ministry of Rev. Ezra Leonard. I look upon the conversion of this pastor and his people from the ancient faith of the New England churches to the doctrine of universal salvation as one of the most remarkable events in the history of the town. Here is a minister, a graduate of Brown University, educated in the strictest doctrines of Calvinism, and settled over a church which

has for many years listened to him as the expounder and advocate of these doctrines, who announces to his people that a great change in his religious belief has taken place, and that he must, if not there, elsewhere, henceforth preach a doctrine he has all his life been laboring to destroy; and these people, after serious deliberation, conclude that it is better to change their religion than to change their minister. This action was a striking testimonial to the superiority of christian character over sectarian profession, and the result of it was an abundant harvest of religious harmony and joy throughout the twenty years of his continued ministry. The memories of these people are even now, forty years after his death, full of the kind words and good deeds of this honored and beloved pastor. The description of the good minister in Goldsmith's "Deserted Village" will apply to him. "E'en his failings leaned to virtue's side;" so, at least, must have thought the poor, ill-shod woman whom he met in the road as he was walking home one wintry day, and to whom he gave the pair of shoes, which, to supply an urgent need of his wife, he had been to the harbor to buy.

Rev. C. E. BARNES of Salem felt a deep interest in the study of nature. He believed that the more we knew of nature, the more plainly should we perceive that the God of creation was the God of revelation.

Dr. ADDISON DAVIS of Boston, a Squam boy, spoke most eloquently of the swarm of B's abounding here: beauties, beaches, berries, belles, etc. He was glad that the Institute had come here, for he knew that they would come again. Men who study do know something better in quality and quantity than those who do not, and they increase the sum of human happiness.

The LIBRARIAN announced the following additions :—

By Donation.

- ABBOTT, C. C., of Trenton, N. J. Official Register of the Officers and Men of New Jersey in the Revolutionary War. 1 vol. 8vo. Trenton, N. J. 1872.
- CATE, S. M. The Pellet, a paper at the Homeopathic Fair, Boston, April, 1872.
- FOOTE, CALFB. Files of several County papers, May, June, July, 1872.
- GREEN, S. A., of Boston. Fourth Annual Report of the Trustees of the Boston City Hospital. 1 vol. 8vo. Boston, 1868. Miscellaneous pamphlets, 47.
- GRIFFIN, LA ROY, of Andover. Catalogue of Phillips Academy, 1871-2.
- HAYDEN, F. V. U. S. Geological Survey of the Territories. Profiles, Sketches, etc. 1 vol. 4to. New York, 1872.
- PEABODY ACADEMY OF SCIENCE, Salem. Memoirs. Vol. i, No. 3.
- POORE, B. PERLEY, of West Newbury. U. S. Official Register, 1871. 1 vol. 8vo. Post Office Directory, 1 vol. 8vo. Washington and Georgetown Directories for 1868, 1869, 1870. 3 vols. 8vo.
- SALEM NATIONAL BANK. Boston Daily Advertiser, 1871, 1872.
- SALEM MARINE INSURANCE COMPANY. New York Commercial Advertiser, 1858, 1859, 1860, 3 vols. folio. New York Daily Advertiser, 1861, 1 vol. folio. New York Shipping List, 1857-8, 1858-9, 1870, 1861, 4 vols. folio. Boston Daily Advertiser, 1851, 1857, 1858, 1860, 1861, 5 vols. folio.
- SPENCER, THOMAS, of Bransby, near Lincoln, Eng. Doomsday Book Translation by Chas. G. Smith, 1 vol. 8vo. Battle of Agincourt, 1 vol. 8vo. London, 1833.
- SPOFFORD, DR., of Groveland. Genealogy of the Spofford Family, 1 vol. 12mo.

By Exchange.

- AMERICAN ACADEMY OF ARTS AND SCIENCES, Memoirs of. Vol. x, Pt. I, 1868. Proceedings of, sigs. 38-51 of Vol. viii. 1870.
- ARCHIV FÜR ANTHROPOLOGIE. Bd. v, Heft II, 1872. 4to pamph.
- BIBLIOTHEQUE UNIVERSELLE ET REVUE SUISSE. Archives des Sciences Physiques et Naturelles. Nos. 163-173, 1872. 5 pamphlets, 8vo.
- CANADIAN INSTITUTE, of Toronto. The Canadian Journal of Science, Literature and History, Vol. xiii, No. 4. July, 1872.
- GESELLSCHAFT NATURFORSCHENDER FREUNDE ZU BERLIN. Sitzungs-Berichte, 1871. 8vo pamph.
- IOWA STATE HISTORICAL SOCIETY. The Annals of Iowa, Apr., 1872. 8vo pamph.
- K. K. ZOOL. BOTAN. GESELLSCHAFT IN WEIN. Verhandlungen, Jahrg., 1871. Bd. xxi. 1 vol. 8vo.
- KONGLIGA SVENSKA VETENSKAPS AKADEMIÉN STOCKHOLM. Oversigt, Bd. xxvi, xxvii, 1869, 1870. Lefnads-teckningar, Bd. i, Häfte II, 1870. Handlingar, Bd. vii, viii, ix, 1868, 1869, 1870.
- L'INSTITUT ROYAL GRAND-DUCAL DE LUXEMBOURG. Publications, Tome xii, 8vo pamph. 1872.
- NATURWISSENSCHAFTLICHER GESELLSCHAFT ISIS IN DRESDEN. Sitzungs-Berichte. Oct., Nov., Dec., 1871. 8vo pamph.
- NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY. Hist. Gen. Register and Antiquarian Journal, July, 1872. 8vo pamph.
- ROYAL SOCIETY of Tasmania. Monthly Notices of Papers and Proceedings for 1870. 8vo pamph.
- SENCKENBERGISCHE NATURFORSCHENDE GESELLSCHAFT IN FRANKFURT. Abhandlungen, Bd. viii, Pt. I. H. 4to pamph. Bericht, 1870, 1871. 8vo pamph.

SOCIÉTÉ D'ACCLIMATION. Bulletin. Mensuel. 2me Serie. Tome ix. 1872.

VEREIN ZUR BEFÖRDERUNG DES GARTENBAUES IN BERLIN. Wochenschrift. Jahrg. xiv. Numbers 1-52. 1871.

ZEITSCHRIFT FÜR DIE GESAMTEN NATURWISSENSCHAFTEN IN BERLIN. Bd. iv. July-Dec., 1871. 6 pamphlets. 8vo.

PUBLISHERS. American Naturalist. Christian World. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Land and Water. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Sailors' Magazine and Seamen's Friend. Salem Observer.

The SECRETARY announced the following correspondence:—

J. W. Balch, Boston, July 31; J. Prescott, Boston, July 30; Boston Public Library, July 22; Bowdoin College, Trustees, Aug. 5; Buffalo Historical Society, July 22, Aug. 2; Frankfort-a-M., Die Senkenbergische Naturforschende Gesellschaft, Mar. 19; London Royal Society, July 1; Maine Historical Society, Aug. 5; Maryland Historical Society, July 23; New England Historic-Genealogical Society, Aug. 5; New York Historical Society, July 19, 22, Aug. 3; Ohio Historical and Philosophical Society, July 30; Rhode Island Historical Society, Aug. 1; Stockholm, L. Academie Royale Suedoise des Sciences, Avril, Mai 8.

The PRESIDENT read the following letters from Messrs. Thomas Spencer and E. W. Farley, which were addressed to him and had recently been received.

BRANSBY, NEAR LINCOLN, 10th 7th mo., 1872.

DEAR SIR:—I have this day forwarded, by son Franklin who sails from Liverpool in the "Spain" for New York, a partial translation of Doomsday book and hope that it may be accepted as a small contribution to the historical department of the Institute. I am prompted to do so by the fact that on one of my voyages from Salem to the old country, some Salem gentlemen requested me to hunt up a full translation of the original Doomsday. This commission I could not execute and I am not now aware that such a translation is extant. With this volume there is a map of England which exhibits a picture of the country very much as the Pilgrim fathers left it behind them.

I have forwarded by the same conveyance History of the "Battle of Agincourt" because it contains the Roll Call of the principal English gentry, the class who followed our fifth Henry in his famous expedition. I remember on one occasion hearing the Rev. Mr. Wilhington of Newbury quote from this Roll Call to prove from the similarity of names that the principal part of the early settlers of New England were from the same class. This little reminiscence prompted me to send the History. It is not a readable book any more than Doomsday,

but it may have an interest for the archæologist and, peradventure, a place in the historical department. It is a cherished doctrine of mine that the history of old England and New England are identical up to the great Revolution.

I beg to acknowledge the receipt of books and papers relating to the antiquities of Salem and its vicinity, together with some that exhibit a pleasant picture of the happy life of the good people of the good old town. Long may they continue to enjoy their happiness. I remember with affectionate gratitude their kindness to me and mine when we were poor and strangers among them. Believe me, dear Dr. Wheatland, thy sincere friend and humble coadjutor,

THOMAS SPENCER.

NEW CASTLE, MAINE, JULY 29, 1872.

DEAR SIR:—During my pleasant call at the rooms of the Institute, at Plummer Hall, in October last, in company with my friend, Cyrus Woodman, Esq., of Cambridge. I promised to send you a history of the oak arm-chair, which I saw there, which was presented to the Essex Historical Society, June 27, 1821, by the late Robert Brookhouse, Esq., of Salem.

This I should have done long since, had I not been waiting to make a fit disposition of another chair, the mate of yours, at that time in my possession and which has a history similar to yours, down to the time the latter went into the possession of Mr. Brookhouse.

I have given mine to Bowdoin College, for a Commencement Chair, with a plate added, suitably inscribed. As my letter to President Chamberlain, of that Institution, embraces all that is of interest connected with both chairs, including a chest and a tape loom, all of which comprised a set of four pieces of furniture, formerly belonging to the Dennis family, of Ipswich, in your county, I send you by this mail, a copy of the Brunswick Telegraph, of July 26th inst. containing the letter, and it is unnecessary for me to add any thing farther to the subject of this communication.

Yours very respectfully,

E. W. FARLEY.

The following extract from the letter of Mr. Farley to President Chamberlain was then read.

Its history is this: it was brought from England, probably in 1635, when Daniel and Thomas Dennis, the first emigrants, so far as I can discover, of the Dennis family of Ipswich, Essex County, Mass., came over. This chair, with its mate, similar in style, though a size smaller

(from which circumstance, I infer that it was for the matron of the house), an oaken chest, about 2 feet 6 inches in length, by 1 foot 6 inches in width, with legs, and a lid, its sides carved like the chair, and a small tape loom, such as the ladies of the olden time used to manufacture their garter stuff, comprised a set of four pieces of furniture, which my paternal grandmother, Sarah Dennis, wife of John Farley, both of said Ipswich, brought to this town, to which they removed in 1772 or 1773. Its mate, through Robert Brookhouse, of Salem, Mass., who married a daughter of my grandfather Farley, found its way back to Essex County, and was presented by him to the Essex Historical Society (since merged in the Essex Institute), on the day of its organization, June 27, 1821, and was occupied by the venerable Dr. Holyoke, its first President. It is now at the rooms of the Institute, at Plummer Hall, in Salem. Some years afterwards, the chest went into the possession of Mr. Brookhouse, and is now in the possession of his daughter (by a second wife), Mrs. Perkins, wife of Judge Perkins, of Salem. The tape loom has been lost, or destroyed.

That chest bears the date of 1630. David Dennis, a brother of my grandmother, Sarah Dennis, aforesaid, who died at Nobleboro', in this State, in October, 1813, aged 92, told me a few months prior to his decease, that these pieces of furniture were then more than 200 years old. His statement, taken in connection with the date upon the chest, establishes, I think, beyond reasonable cavil, the age of the chair.

Mr. R. KNOWLAND of Marblehead, after a few preliminary remarks, offered a resolution of thanks to the proprietors of the church, to Messrs. James S. Jewett, George Norwood, Josiah Friend, John D. Davis, Elias Davis, Jr., A. F. Bragdon, W. E. Dennis, John A. Going, James A. Dennison, Fred. Davis, Fred. W. Lane, James Davis, E. W. Coffin, and all others who had been active in their attentions, during this pleasant visit to Amisquam. The resolution was unanimously adopted.

The meeting closed at 4 o'clock and the party was conveyed from the church to the railroad station in carriages in waiting and departed highly pleased with their excursion, both as to the kind reception by the people of the village and the beautiful scenery and views presented on every hand.

CATALOGUE OF THE MAMMALS OF FLORIDA, WITH NOTES ON
THEIR HABITS, DISTRIBUTION, ETC.—BY C. J. MAYNARD.

INTRODUCTION.

THE following paper is the result of notes taken during three winters' travel in Florida. These journeys were undertaken mainly for the purpose of studying the habits of the birds found in this region, but considerable attention was also paid to the mammals. The first trip was made during the winter of 1868-69, when the country about the lower St. John's, Lake Harney, and the eastern coast, north of Cape Canaveral, was explored. At this time I was accompanied by Messrs. C. A. Thurston and J. F. LeBaron, who served as assistants. The second journey was accomplished during the season of 1870-71. Then the country on the western coast about Cedar Keys, and the southern portion of Florida, including the Keys and Everglades, were visited. I was assisted in my researches by Mr. H. W. Henshaw, and accompanied by my artist friend, Mr. E. L. Weeks.

The ensuing winter (1871-72) found me once more on the St. John's River. The country along this river was explored as far as South Lake; then we visited Indian River and examined the coast as far as Spruce Creek on the north, south to Jupiter Inlet. I was accompanied by an assistant, Mr. E. C. Greenwood, and Messrs. G. W. Winegar, T. P. Barnes, Jr. and F. A. Ober. I am indebted to the gentlemen named for notes and specimens. I would also tender my thanks to Capt. Douglass Dummer of East Florida, Dr. J. V. Harris of Miami, Mr. J. L. Burton, who served me well as a guide, for valuable notes and assistance, and to Prof. S. F. Baird, Dr. Harrison Allen and Mr. J. A. Allen for kindness in identifying specimens.

Besides the notes upon the habits, distribution, etc., of the species given, some of which may perhaps be new, I have been able to add one species to the fauna of the United States, one to the eastern section of the Union and one to Florida. A few other mammals than those given may occur in the state, especially the smaller species. But I trust this will prove a tolerably correct catalogue of the mammals which inhabit Florida.

FIELD.

I. *Felis concolor* LINN.

Panther, Tiger, Puma.

This large cat is very common on Indian River, in the interior and more southern sections of the state, but is not found on the Keys. It is quite a formidable animal, growing sometimes to be eleven feet in length, measuring from the end of the nose to the tip of the tail, and

if its courage corresponded with its size it would be a dangerous foe to the inhabitants. It is, however, exceedingly cowardly and I never knew of any well authenticated instance of its attacking man, although some stories were related of its carrying away young children, which may have been true. The puma is capable of performing such feats, for it possesses great strength. Capt. Dummett informed me that he had shot one near his plantation in the autumn of 1871, which had killed a full grown buck and was devouring it.

Like many of this family the puma is nocturnal in its habits and remains concealed in the dense swamps and hummocks during the day, commonly reclining on the limb of a tree. It is said to drop upon its prey from such an elevation, and many old hunters warned me against passing through the thick woods in the early morning or late in the evening as they said that the tigers were usually on the alert at such times and might be tempted to spring upon one if he were alone. It is very inquisitive when its dominions are invaded during the day, and will often follow the intruder for some distance, uttering a low, moaning cry, but is always careful to keep concealed.

Besides this peculiar low note it emits a variety of harsh sounds, some of which are only given during the night, and are quite terrifying when first heard, especially one in particular which resembles the scream of a woman in extreme agony. This cry is more frequently given in March, when the males are in pursuit of the females. I think the young are dropped in the autumn. Skins of this animal which I have seen from Florida are of a decidedly rufous color without spots or bars. It may be well to remark that I have frequently heard, from hunters, of tigers which were not only of a larger size than the common species, but which were said to be spotted. I never saw a specimen, but it is not impossible that the closely allied species *Felis onca* may be found here, although I hardly think it probable.

[To be continued.]

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 4. SALEM, MASS., OCTOBER, 1872. NO. 10.

One Dollar a Year in Advance. 10 Cents a Single Copy.

CATALOGUE OF THE MAMMALS OF FLORIDA, WITH NOTES ON THEIR
HABITS, DISTRIBUTION, ETC.—BY C. J. MAYNARD.

[Continued.]

2. *Lynx rufus* RAFINESQUE.

Common Wild Cat.

THIS animal is abundant even on the borders of the settled districts. It is quite annoying to the planters, for it not only commits serious inroads upon hen roosts, but frequently carries off young pigs. It is a nocturnal animal, and is seldom seen abroad during the day, but conceals itself in the thick hummocks. During the season when the males are in pursuit of the females it may be occasionally met with, especially in the morning and evening. At this time its loud and varied cries are heard, sometimes during the day, but oftener during the night. This is naturally a cowardly animal, and will invariably fly from man when it has the power to do so. The wild cats are only as large as setter dogs, yet they possess great strength, and a man requires considerable determination to attack one when placed in such a situation that it cannot escape. My friend, Mr. Thurston, once seized a full grown male, that was only slightly stunned by a charge of dust shot, and strangled it, but did not escape without receiving some scratches. Although shy when faced, they will often approach quite near one when sleeping in the open air, and I have upon two

occasions been awakened by their cries to find the beasts within a few feet of me, but upon my moving they instantly sprang away.

Florida specimens of this species are fully as large as those from more northern localities. I give the dimensions of a full grown male taken at Dummett's. From nose to eye, 1.80; to ear, 4.78; to occiput, 6.00; to root of tail, 33.00; to outstretched hind leg, 48.00. Tail to end of vertebra, 7.75; to end of hair, 8.60. Length of hind leg, 7.00. Length of hand, 4.40; width, 2.00. In color Florida wild cats are much more rufous than those from the north, and are inclined to be more spotted.

CANIDÆ.

3. *Canis lupus* LINN.

Gray Wolf.

The stronghold of these wolves is at present in what is called the "Gulf Hummock" in western Florida, where they are quite numerous. According to Mr. F. A. Ober they are also found about the Kissinee River and Lake Okechobee. I saw the tracks made by a single animal near Salt Lake. It was accustomed to pass along a sandy road every night for the greater part of the time which we remained in the vicinity. My guide, Mr. Burton, who had resided near this place for some months, informed me that he had never seen it, nor had any of the settlers, although it was frequently heard to howl. I did not meet with any wolves about Miami nor do I think that they occur south of the Everglades. Individuals who have frequently taken this species describe them as being very dark colored, usually quite black.

4. *Vulpes Virginianus* RICHARDSON.

Gray Fox.

Common in the wilder districts. This little fox does not appear to do any great degree of mischief on the plantations and it is probable that it finds sufficient wild game to satisfy its appetite. I once surprised one that was cautiously making its way towards a large bevy of quails with the evident intention of capturing some. Specimens from Florida are quite gray in color, especially upon the upper parts.

MUSTELIDÆ.

5. *Putorius lutreolus* CUVIER.

Mink.

I saw but a single specimen of this animal. This was on the St. John's River above Blue Springs, where one swam across the river but a short distance in advance of our boat. I did not learn that it was at all common; indeed, nearly all the hunters seemed entirely unacquainted with it.

One feature, noticed in skins of this species taken in Maine and New Hampshire, which I have never seen mentioned, is the presence of white hairs which are more or less numerous in the dark colors of the back. This species appears inclined to albinism, but the appearance of the white hairs is not the result of this disease, for in every instance that I have seen of an approach to albinism the fur turns white first and the hair afterwards.

6. *Lutra Canadensis* SABINE.

Otter.

Very abundant throughout the greater part of the state. I found them as numerous on Indian River as in the interior, but did not meet with them at Miami, in the Everglades or among the Keys. The fur is of little value in comparison with northern skins; the best winter pelts being worth but five dollars each in Boston. The usual price paid in Jacksonville is from seventy-five cents to one dollar, consequently they are not hunted much and therefore are not shy. They are quite inquisitive and will sometimes follow a boat for some distance, or approach any one standing upon the shore. At the same time they will utter a short, continuous grunt. Otters may frequently be seen chasing each other sportively through the water, and while we were in the vicinity of South Lake, my guide, Mr. Burton, called my attention to certain smooth paths in a sandy spot, which he said were otter slides. They appear to amuse themselves by dragging their bodies over the smooth sand, just as the same species glide down snow-covered river-banks at the north. The slides in Florida were situated at some distance from the water.

The color of adult otters from this state is strongly inclined to reddish-brown, but the young which are dropped in February are very dark. I think I never saw a more beautiful animal than a young specimen of this species which was captured at the head of Indian River by Mr. Thurston. It was only about two weeks old, yet was covered with a fine coat of exceedingly glossy fur.

7. *Mephitis mephitis* BAIRD.

Common Skunk.

This species seems to be restricted to the more northern portions of the state. Specimens taken in this region present the same variation regarding the distribution of the black and white which is noticeable in this animal elsewhere. Although the amount of the above named colors is changeable, it is unusual to see the skunk of a different hue; yet Mr. F. A. Ober of Beverly has a specimen which was taken in that place, that is marked in a very singular manner. inas-

much as those portions which are usually black are in this instance pale brown or fawn.

8. *Mephitis bicolor* GRAY.

Little Striped Skunk.

This pretty little species which, previous to my discovering it in Florida, was not known to occur east of the Mississippi, is very abundant in certain sections of the state. They are confined to the narrow strip of land which lies between Indian River and Turnbull Swamp, being found as far north as New Smyrna and south to Jupiter Inlet. They appear to take the place of the common skunk, which does not occur in this section. They frequent the scrub, and traces of them may be seen at all times, for they have the habit of digging small holes in search of insects, like the preceding species. These skunks are easily domesticated and I have frequently known of their being used in the houses for the purpose of catching mice. Sometimes the animals are captured and the scent glands removed, but they are often simply decoyed about the premises by exposing food, when they will take up their abode beneath the buildings, and will soon become so tame as to enter the various apartments in search of their prey.

URSIDÆ.

9. *Procyon lotor* STORR.

Raccoon.

Very numerous both upon the mainland and among the Keys, even frequenting the low mangrove islands which are overflowed by every tide. They subsist upon fish and crabs to a great measure when upon the seashore, but in the interior they live chiefly upon the fluviatile mollusks (*Unio*, *Pomus*, etc.). They are strictly nocturnal, seldom appearing abroad during the day.

In color the Florida raccoon differs from New England specimens in being more rufous; the black markings are not as conspicuous, the dark rings on the tail being sometimes nearly obsolete; in fact, adult specimens from Florida in this respect resemble those from New England.

10. *Ursus Americanus* PALLAS.

Black Bear.

Very common, especially in the unsettled districts; giving the inhabitants considerable trouble by destroying young pigs. Although extremely abundant in certain sections, as the numerous tracks indicate, it is difficult to see one, for they chiefly move about during the night. The bears of Florida do not hibernate, but are not quite as active during the winter months as in summer. The young are

born in early spring, after which the females are said to be somewhat dangerous, especially if surprised when with their cubs; but at other times both sexes are arrant cowards. They will not even molest one when sleeping, but will always avoid the presence of man when aware of it. I have made my bed in a bear path and, in the morning, found by the tracks made by them in the night that they made a wide circuit rather than pass near me.

The food of the Florida bears is variable. During the early winter they feed on the berries of the common and the saw palmettoes; later in the season they eat the tender new growth, or buds, of the above mentioned plants: for this purpose they will climb the tallest palmetto and with their strong claws will tear out the "cabbage," as the new growth is sometimes called, and eagerly devour it. The removing of this bud is no easy task even to an experienced person provided with an axe, yet Bruin's great strength enables him to force the tough leaf-stalks asunder with the greatest of ease. Trees which have been treated in this rough manner invariably die and a large number may be seen in this condition in any cabbage swamp.

When the king or horseshoe crabs come on shore to deposit their spawn, the bears resort to the shore and, after turning the crustaceans over, scoop out their softer parts. They are also aware of the time when the sea turtle lay, and during the months of June and July walk the beaches nightly and devour the eggs. Indeed, so persistently do they hunt for them that it is almost impossible to find a nest that has been undisturbed.

The bears of this state are fully as large as those from New England, and the hair is as dark colored. I have also seen skins that were but little inferior to northern ones in woolliness, but generally they are only covered with hair. One which I procured at Dummett's in the winter of 1869 is singularly marked, for it has brownish lines starting from the point of each shoulder and extending down the legs on the inside. The other portion of the hair is black. The young for a year or two are strongly inclined to reddish-brown. The bears inhabit the entire portion of the mainland, but are seldom found on the Keys.

CERVIDE.

11. *Cariacus Virginianus* GRAY.

Common Deer.

Very numerous in almost all sections. The deer of Florida are not likely to be exterminated very soon, not only because of their abundance, but because the inhabitants do not kill them wantonly, knowing that they are extremely valuable to them for food, and the tourists who possess sufficient skill to capture any number of them are scarce.

When we first attempted to hunt deer we were almost always unsuccessful, even rarely being able to see one, and were informed by the hunters that we did not go out at the right time. Upon questioning them they told us that the deer were governed in their time of feeding by the moon. An hour before moonrise the animals arose from their beds or came out of the hummocks to feed upon the grass in the clearings, or in the pine woods, continuing until after the moon was up. An hour before the moon southed (*i. e.*, attained its highest altitude) they did the same thing, and also when it was directly beneath the earth, making in all eight hours feeding time. At first I laughed at this as an old hunter's notion, for although it is easy to understand why the deer should feed at those times when the moon rises near night and sets near morning, it is difficult to perceive why they should conform to the same rule through all the varying phases. But after three seasons' experience I am obliged to acknowledge that as far as my observation extends this theory is correct. The deer are certainly seen feeding much more frequently during these stated times than at others. Of course one occasionally meets a straggling animal at other hours, but I never found any number on their feet at any other time. All the hunters with whom I have conversed also confirm this. Another singular fact is that the great horned owls hoot at the feeding time of the deer, even if it be broad daylight. I have observed this fact on many occasions, and the hunters, when they hear the owls, say "now the deer are feeding."

Early in February the deer moult. The bucks then lose their horns and the does are heavy with young, which they drop in March. Before the moult the hair is of a bluish color, but after shedding they take on a sleek coat of fine reddish hue. This animal is found in all sections, even on the Keys. They inhabit small islands where they can obtain little or no fresh water, yet deer from these localities are noticeably larger than those from the mainland. Of this fact I have been assured by Lord Parker, an English gentleman who has spent several winters in Florida, and who has killed a large number of these animals in all sections of the state.

MANATIDE.

12. *Trichechus monatus* LINN.

Manatee.

This singular animal is found in large numbers about the inlets of Indian River, and Capt. Dummett informs me that he has captured specimens as far north as his place, which is within five miles of the head of the river. I have been informed by creditable authorities that it is remarkably abundant upon the western coast in the various rivers and creeks which abound between Tampa Bay and Cape Sable.

I have never seen it in Mosquito or Halifax Lagoons and am confident that it does not occur there. This species is said to feed upon the leaves of the mangrove during the night.

DELPHINIDÆ.

13. *Delphinus erebennus* COPE.

Porpoise.

A large number of porpoises which I take to be this species occur abundantly about the bays, salt water rivers and along the entire coast of Florida. It is also probable that a second species may be found.

VESPERTILIONIDÆ.

14. *Lasiurus Noveboracensis* GRAY.

Red Bat.

Common in the more northern sections of the state, frequenting the woods. During the day they rest hanging head downwards upon the leaf of a tree. Specimens captured are not only smaller in size than those from the north, but are much deeper in color; the fur, however, is generally tipped with ash.

15. *Scotophilus fuscus* H. ALLEN.

Carolina Bat.

Common throughout the northern sections, but more abundant in the vicinity of settlements.

I once captured a female specimen of this species which was heavy with young, placed her in a cage and left her. After an absence of an hour or so I returned and found that she had escaped, but had left a young one clinging to the woodwork on the side. The little thing was entirely naked, but was furnished with teeth, which it showed when handled and endeavored to bite, squeaking after the manner of all these animals. I replaced it in the cage, where it remained until night, but in the morning it was gone and I supposed that its mother had carried it away.

16. *Scotophilus Georgianus* H. ALLEN.

Georgia Bat.

Two bats which I have in my collection, that were shot about ten miles south of Salt Lake, I think are of this species. The specimens were taken in the evening and were flying about near a small pond in the piny woods.

17. *Nycticejus crepuscularis* H. ALLEN.

Mr. J. A. Allen in the "Bulletin of the Museum of Comparative Zoology" (Vol. ii, No. 3, p. 174) states that there is a specimen of

this bat in the museum at Cambridge which was collected in Florida by Mr. Charles Belknap.

18. *Corynorhinus macrotis* H. ALLEN.

Big-eared Bat.

Dr. Harrison Allen in his monogram of North American Bats (p. 55) cites a specimen of this species which was collected in Micanopy, Florida, by Dr. Bean.

NOCTILIONIDÆ.

19. *Nyctinomus nasutus* TOMES.

A bat was shot by a member of my party on the St. John's River, near Jacksonville, early in the winter, which I am confident was of this species. This specimen was unfortunately lost.

SHENODERMIDÆ.

20. *Artibeus perspicillatus* MAYNARD.

Tailless Leaf-nosed Bat.

While at Key West in the early winter of 1870, I observed several large bats flying about the city, which closely resembled in flight a species which I had seen in northern Florida two years before, but which flew so high that I was unable to shoot them. I was very anxious to obtain a specimen, but as shooting was prohibited in the streets of the city of Key West, and as I never saw the bats elsewhere on the island, feared that I should be obliged to go away without one. I was, therefore, agreeably surprised one morning to see a boy enter my room with a bat in his hand, which from its large size I knew could be no other than the species which I had so long desired to obtain. He said that he had found it hanging upon the leaf of a tree and had killed it with a piece of limestone. It is a leaf-nosed bat, and Dr. Harrison Allen has kindly identified it, from sketches sent to him, as the above species. This is, I think, the first instance on record of a bat of this form being taken on the Atlantic slope. This species, without doubt, inhabits the whole of Florida. They fly early in the evening, often before sunset, and, as has been remarked, usually very high.

None of the bats of Florida appear to hibernate, or at best they only remain quiet during an occasionally cold night.

SORECIDÆ.

21. *Blarina brevicauda et talpoides* BAIRD.

Mole Shrew.

I found a single specimen of this little species in an unused cistern.

at Miami. I have never seen it elsewhere in the state, although it probably occurs.

TALPIDÆ.

22. *Scalops aquaticus* FISCHER.

Shrew Mole.

Very common at Blue Spring, where they do considerable damage by disturbing the roots of vegetables and plants in the cultivated fields. They are also said to eat sweet potatoes. They form their burrows only an inch or two below the surface; throwing up ridges so that their presence is readily detected. This work is usually performed during the night.

SCIURIDÆ.

23. *Sciurus niger* LINN.

Southern Fox Squirrel.

Quite common in the piny woods, but I do not think that they are ever to be found in the hummocks. They feed upon the seeds of the pines and are therefore usually found in the tops of the trees which are commonly high; thus it is quite difficult to procure specimens, as on the approach of the hunter they conceal themselves among the thick foliage. They are extremely variable in color, specimens being found which exhibit all shades of coloration from pale rufous to black or dusky. The latter colors predominate, however. I think this species is confined to the more northern portions of the state, as I have never seen it at Miami.

24. *Sciurus Carolinensis* GMELIN.

Gray Squirrel.

Very abundant in the northern and central sections of the state, but singularly I did not see it at Miami, or among the Keys. They inhabit the hummocks and are seldom seen in the piny woods. They have much the same habits as those which inhabit New England. But I cannot now remember of ever having seen a nest of sticks and leaves such as this species construct in the north. Specimens are not only smaller in size, but are also more rufous than northern individuals. I have never seen a specimen of the black variety in Florida and am confident that it seldom, if ever, occurs.

GEOMYINÆ.

25. *Geomys pineti* RAFINESQUE.

Salamander.

This singular animal is confined to the more northern portions of the state, none being found south of Lake Harney. They inhabit the dry pine barrens, where in the process of burrowing they throw up

little mounds which in some sections are quite numerous. They are provided with large cheek pouches, with which they are said to convey the earth to the surface. The salamander is seldom seen abroad during the day, and if they ever leave the burrows it is in the night. When by any accident they appear above ground in the daylight, they seem confused, and may be readily captured.

MURIDÆ.

26. *Mus decumanus* PALLAS.

Brown Rat.

Found abundantly at Jacksonville, not only in the city, but on the neighboring plantations. I do not remember of having observed it elsewhere in Florida. I have never seen a specimen of the common mouse (*mus musculus*) in the state.

27. *Mus tectorum* SAVI.

White-bellied Rat.

The first instance of my finding this species in Florida was at Miami. There was an old cistern here which was formerly used by the troops which were stationed at old Fort Dallas. It was about ten feet deep, having cemented sides, and contained nearly two feet of water. Several species of the smaller *rodents* were frequently found dead and floating on the surface, having evidently fallen in while attempting to reach the water. Among them was a specimen of the white-bellied rat. As this was the only instance of my taking it in the southern section of the state I am unable to give any account of its habits there. But I found it in immense numbers at Salt Lake, inhabiting the moist prairies. Here they build nests near the tops of the grass, somewhat after the manner that the white-footed mouse builds in bushes at the North. This species was probably introduced into the country from the vessels of the early Spanish discoverers. In the old world it inhabits the thatched roofs of houses, from which we may infer that this species originally found its home among thick reeds or grasses, of which the roofing would probably be composed. Thus in the white-bellied rat of the wilds of Florida we have an example of a species instinctively returning to its primitive habits, even though its ancestors from force of circumstances have for many generations dwelt in a different manner.

28. *Hesperomys leucopus* WAGNER (= *cognatus*, *myoides* et *gossypinus* of authors).

White-footed Mouse.

This mouse is very abundant throughout all sections of the mainland of Florida, infesting the houses of the smaller settlements after

the manner of the common mouse. I have also known this to occur in New England, especially in isolated buildings. I can see no reason why the so-called *gossypinus* should be separated from *leucopus*, as I can find no constant character which would entitle it to a specific rank.

29. *Hesperomys aureolus* WAGNER.

Golden Mouse.

I obtained two specimens of this beautiful little mouse near Dunnett's. Both of them were captured in a house where the common species (*leucopus*) was also abundant. This was in the spring of 1869, but since that time I have never been able to find another, and the people who brought the specimens informed me that they were quite rare.

30. *Hesperomys palustris* WAG.

Rice-field Mouse.

Audubon and Bachman say that a specimen was obtained in the Everglades of Florida by Dr. Leitner. I was aware of the existence of a small *rodent* in these immense marshes, but was unable to obtain specimens. They probably were of this species, however.

31. *Neotoma Floridana* SAY and ORD.

Wood Rat.

I saw nests of this species quite common about Jacksonville and Hibernia, but found none at Blue Springs or at any section south of this point. But Prof. Baird, in his "Mammals of North America," cites a specimen which was taken on Indian River by Dr. Wurdemann.

32. *Sigmodon hispidus* SAY and ORD.

Cotton Rat.

Common throughout the entire mainland of Florida, and appears to frequent the marshy places along the borders of rivers and other bodies of water. Whenever we encamped in such localities the cotton rats would gather around to feed upon remnants of scattered food. It appears to be nocturnal in its habits.

33. *Arvicola pinetorum* LECONTE.

Pine Mouse.

I insert this species on the authority of Audubon and Bachman, who assert that they have received it from Florida.

LEPORIDÆ.

34. *Lepus sylvaticus* BACHMAN.

Gray Rabbit.

Abundant throughout all sections of the mainland, frequenting the

pine woods as well as the hummocks. They appear to have much the same habits as at the north.

35. *Lepus palustris* BACHMAN.

Marsh Rabbit.

Common in the marshes of the St. John's River.

DIDELPHIDÆ.

36. *Didelphys Virginiana* SHAW.

Opossum.

Common throughout the mainland of the state, but does not occur on the Keys. These animals are a decided pest to the inhabitants, for they are prone to rob hen roosts. They are strictly nocturnal, remaining concealed in the trees during the day.

I have never met with an undomesticated animal so variable in color. Three specimens now before me exhibit the extremes. One, evidently an old individual, is gray throughout, inclining more to white, with no decided black markings, excepting the ears, legs and feet. The latter are *black to the nails* on some of the toes, while the other claws have a few white hairs at their bases. The tail is entirely white. Another, younger, has dirty white fur with black tips. Numerous long white hairs appear over the entire upper surface of the body, giving the animal a singular appearance. The hind legs and feet are black, as in the other specimens, to the nails, excepting a few white hairs at their bases. The front legs and feet are black nearly to the claws. The ears are tipped with white, while the tail is black for the basal third, the remainder white. Another young specimen has the base of the fur white, but with the tips so decidedly dark that it nearly conceals the former color, and no one would hesitate to call it a black opossum. Yet its toes are white, there are white markings about the head, and a stripe on the belly is white, with a yellow suffusion between the fore legs. Only one-fourth of the basal portion of the tail is black.

These three represent the widest variation I have ever met with, in point of color, and Mr. J. A. Allen, in the "Bulletin of the Museum of Comparative Zoology" (p. 185), and Dr. Elliott Cones, in the "Proceedings of the Academy of Natural Sciences of Philadelphia," for May, 1871, assert that the skulls are also extremely variable.

APPENDIX.

Mammals which were formerly found in Florida.

According to Bartram the beaver (*Castor Canadensis*) was formerly found in the state. He makes mention of it in his travels in Florida, published in 1791.

The historians of De Soto's travels speak of herds of wild cattle being found in Florida. They probably allude to the buffalo (*Bos Americanus*), which without doubt extended its range to the prairies of the west coast.

The last mentioned authors and other early writers also speak of a wild dog as inhabiting Florida. They cannot mean the wolf or the fox, for these are included in their lists of the animals of the then new country. It is possible that the singular species of dog now used by the Seminoles of Florida was once wild.

Domesticated species found in a wild state.

There are hundreds of cattle in Florida which are now perfectly wild and have been in this condition since the first Indian war, at which time they escaped from their owners. They generally inhabit what is termed the "Turnbull Swamp," a wide expanse of waste land which lies about the head of Indian River. But I have seen them in the interior, near the head waters of the St. John's River. They are rapidly becoming exterminated, however, as the settlers consider them common property and shoot them whenever they can.

Hogs are also found wild in some sections, but not in any great numbers. The usually black color of the domestic hogs of Florida has been noticed by Darwin in his fifth edition of "Origin of Species" (p. 26) on the authority of Prof. Wyman. He says that the light colored hogs contract a disease from eating the paint-root (*Lachnanthes tinctoria*) which causes their hoofs to drop off, whereas black ones are not affected by it. I have carefully inquired into this matter and have not only observed for myself, but conversed with many intelligent men upon the subject. I find that a slight error has been made in the statement. The color of the hair or bristles has nothing to do with the health of the animal, but its *hoofs* must be black in order that it may eat the paint root with impunity. I have seen black pigs having white feet lame from this cause, and this is the usual opinion of all the pig raisers with whom I conversed. Yet this does not materially affect Mr. Darwin's argument, which is that the mere existence of a certain plant causes the hogs of this section to assume a dark color, for if the hoofs are dark the whole animal is usually dark. That the case may be made seemingly stronger I will say, that in some sections of Florida, where the paint root does not grow, white hogs are as numerous as black ones.

I find that there is another reason why the settlers select hogs which are of a dark color. This is that they stand a better chance of escaping from bears than white ones, as they are less conspicuous, especially in the night. Now I can go a step farther and show that

the hogs of themselves assume a protective color. It is noticeable that hogs which have lived for generations in the piny woods are of a reddish hue, corresponding exactly with the color of the fallen pine leaves, so that it is almost impossible to detect one at a little distance when it is lying upon a bed formed of them.

This instance, together with the fact that the black hoof is a safeguard against the poisonous effects of the paint root, seems a conclusive argument in favor of the theory that the Florida hogs have made a slight advance towards forming a new variety or species.

But I look upon it in another way, and see in these instances but illustrations of a law in nature which grants to nearly all animals the power of assuming protective colors, under certain circumstances, but in a limited degree. This is to be seen in many cases among animals, the most familiar of which is that of the northern hare (*Lepus Americanus*), which in autumn puts off its brown summer dress and takes on one of the color of the snow, among which it has to live throughout the winter. The hogs of Florida return to the mixed colors in sections where the paint root does not grow and where no pains are taken to select black ones, or where their food and surroundings are varied. There are apparently few or no analogous instances to the black hoofs being a protection against poison, yet I will venture to say that did we understand the entire economy of nature, we should find many similar ones.



QUARTERLY MEETING, WEDNESDAY, AUGUST 14, 1872.

THE meeting was held at 3 P. M. The President in the chair.

Stephen P. Driver of Salem and Charles F. Crocker of Lawrence were elected resident members.



REGULAR MEETING, MONDAY, OCTOBER 21, 1872.

First evening meeting, present season, commenced at 7 30 P. M. The President in the chair. Records read.

The SECRETARY announced the following correspondence:—

From American Geographical Society, Sept. 18; Belfast Naturalists' Field Club; Brooklyn Mercantile Library Association, Oct. 8; Buffalo Historical Society, Sept. 12; Edinburgh Royal Society, March; Iowa State Historical Society, Aug. 3; Leeds Philosophical and Literary Society, Sept. 4; London Society of Antiquaries, Aug. 31; Minnesota Historical Society, Aug. 22; Maryland Historical Society, Aug. 12; Moravian Historical Society, Aug. 9; New Jersey Historical Society, Aug. 30, Sept. 3; New York, Cooper Union, Sept. 6, Oct. 15; New York Genealogical and Biographical Society, Aug. 21; New York Lyceum of Natural History, Oct. 7; New York State, Aug. 30; Ohio Historical and Philosophical Society, Aug. 5, Sept. 6; Yale College, Corporation, Sept. 23; Anniden, P. R., Boston, Aug. 22; Anthony, H. B., Providence, Aug. 8; Babson, J. J., Gloucester, Aug. 12; Boow, E. P., New York, Sept. 28, Oct. 4, 17; Chever, D. A., Denver, Col., Oct. 13; Clark, B. H., Rochester, N. Y., Sept. 20; Crocker, Chs. F., Lawrence, Aug. 17; Cram, Milo T., Holyoke, Mass., Aug. 19; Dall, C. H., Boston, Oct. 11; Drake, S. G., Boston, Sept. 13; Frary, Lucius H., Middleton, Sept. 3; Hamard, P. A., New Haven, Conn., Sept. 23; Higginson, T. W., Newport, R. I., Oct. 20; Hough, F. B., Lowville, N. Y., Aug. 7; Marston & Prince, Lowell, Aug. 20; Perry, W. S., Geneva, N. Y., Oct. 1; Roundy, Henry, Salem, Sept. 28; Venable, J. E., Paducah, Ky., Sept. 16; Yeomans, W. H., Columbia, Conn., Aug. 8, Oct. 17.

A letter was read from W. A. WILLIAMS, engineer on the Copiapo Railroad, to Capt. Robert Manning, accompanying a box of fossil shells and radiates, some found above the sea at Caldera, in extensive beds, at four hundred feet above sea level; the others at Molle, about one hundred miles from the coast, at a height of five thousand feet above the sea, where the ground is strewn with them.

Daniel Varney, Charles Baker and Catherine T. Woods, all of Salem, were elected resident members.

Dr. J. L. Smith, Louisville, Ky.; Prof. E. B. Andrews, Marietta, Ohio; Prof. E. T. Cox, Indianapolis, Ind.; Dr. G. M. Levette, Indianapolis, Ind.; J. Collett, Esq., Eugene, Vermilion Co., Ind.; Prof. C. A. White, Iowa City, Iowa; J. L. Waters, Esq., Chicago, Ill.; Col. J. W. Foster, Chicago, Ill.; Prof. C. G. Swallow, Columbia, Mo.; Prof. J. S. Newberry, New York, N. Y.; Prof. A. Winchell, Ann Arbor, Mich.; Prof. Raphael Pumpelly, Cambridge, were elected corresponding members.

THE LIBRARIAN reported the following additions :—

By Donation.

ANDREWS, MISS. Manual for the General Court, 1864, 1 vol. 12mo. Bland's Treatise of Military Discipline, 1 vol. 8vo. London, 1727. Report of the Comptroller of New York, 1854, 1 vol. 8vo. Report of the Portsmouth Relief Association, 1855, 1 vol. 8vo. The Railroad Jubilee, 1851, 1 vol. 8vo. Patent Office Report, 1818, 1 vol. 8vo. Foster's Book Keeping, 1 vol. 8vo. Pickering's Vocabulary, 1 vol. 8vo. Miscellaneous pamphlets, 16.

BOLLES, E. C. Miscellaneous pamphlets, 29.

BROOKS, MRS. HENRY M. Woman's Journal, 26 nos.

BUTLER, B. F., of U. S. H. R. Message and Documents, 1871-2, 5 vols. 8vo. Report of the Committee on Agriculture, 1869, 1870, 2 vols. 8vo. Ku-Klux Conspiracy, 13 vols. 8vo. Patent Office Reports, 1868, 4 vols. 8vo. Smithsonian Report, 1870, 1 vol. 8vo. Mineral Resources West of the Rocky Mts., 1871, 1 vol. 8vo. Report on Commerce and Navigation, 1870, 1 vol. 8vo. Congressional Globe, 3rd Sess., 41st Cong., 1870-1, 3 vols. 4to. Statistics of Population, Ninth Census, Tables I-VIII, 1 vol. 4to, 1870. Report on Investigation and Retrenchment, 8vo pamph. Report of the Commissioners of Education, 1870-1, 2 vols. 8vo. Explorations in Nevada and Arizona, 1871, 1 vol. 4to.

CHANDLER, Z., of U. S. S. Proceedings of the National Union Republican Convention held at Phila., June 5, 6, 1872, 1 vol. 8vo.

CLARK, B. H., of Rochester, N. Y. Directories of Rochester for 1870, 1871, 2 vols. 8vo. Miscellaneous pamphlets, 5.

COLE, MRS. N. D. Salem Gazette, 70 nos. Miscellaneous pamphlets, 20.

CONANT, W. P. Ninth and Eleventh Report of the St. Louis Agricultural and Mechanical Association, 1870, 1872, 2 vols. 8vo. Miscellaneous pamphlets, 6.

CUTTER, A. E., of Charlestown, Mass. Proceedings at the Dedication of the Soldiers' and Sailors' Monument at Charlestown, June 17, 1872. 8vo pamph.

DALAND, W. S., of New York. Directory of New York City, 1871, 1 vol. 8vo.

DE LORIMER, W. K., of Dubuque, Iowa. Iowa State Gazetteer, 1865, 1 vol. 8vo.

GILMORE, L. B., of Ann Arbor, Mich. Directory of Ann Arbor, 1868, 1 vol. 8vo.

HAWKS, J. M., of Pensacola, Fla. The Florida Gazetteer, 8vo pamph., 1871.

KELLOGG, C. A. & Co., of Rochester, N. Y. New York State Directories, 1861, 1869, 2 vols. 8vo. Directory of over one hundred Cities and Villages in the State of New York, 1839-70, 1 vol. 8vo. Directories of Central New York, 1865, 1867, 2 vols. 8vo. Buffalo City Directories, 1866, 1867, 1869, 1870, 4 vols. 8vo. Rochester City Directories, 1861-5, 1866-7, 1867-8, 1870, 4 vols. 8vo.

KIMBALL, JAMES. Lawrence Directories, 1857, 1859, 2 vols. 16mo.

LEE, JOHN C. Commercial Bulletin, Aug. 10, 17; Sept. 7, 11, 21, 28; Oct. 5, 1872.

LOURAT, ALPHONSE, of New York. Vine Dresser's Guide, 1 vol. 12mo.

MANNING ROBERT. Miscellaneous pamphlets, 65.

MC CLELLY, J. L., of Dubuque, Iowa. Directory of Dubuque, 1865-6, 1 vol. 8vo. Miscellaneous pamphlets, 6.

MOORE, CHAS. B., New York. Indexes. Town of Southold, L. I. 8vo pamph.

NATIONAL ASSOCIATION OF WOOL MANUFACTURERS. Bulletin for Apr., Sept., 1872.

OLIVER, HENRY K. Patent Office Reports, 1817, 1850-1, 1851, 1852-3, 1853, 1854, 1856, 1857, 1858, 1859, 1861, 13 vols. 8vo. Message and Documents, 1867-8, 2 vols. 8vo. Auditor's Report, 1867, 1 vol. 8vo. Hawaiian Club Papers, Oct. 1868, 1 vol. 8vo. Eighth Annual Report of the Insurance Commissioners, 1 vol. 8vo. Key to the Element of Arithmetic, by P. E. Chase, 1 vol. 12mo. Miscellaneous pamphlets, 352.

[To be continued.]

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 4. SALEM, MASS., NOVEMBER, 1872. No. 11.

One Dollar a Year in Advance. 10 Cents a Single Copy.

DR. PACKARD gave the following account of recent

EXPLORATIONS OF ST. GEORGE'S BANK.

During the past summer Prof. S. F. Baird, the U. S. Fish Commissioner, with the assistance of Prof. Verrill, fitted up an expedition to explore St. George's Banks with the dredge, for the sake of ascertaining the nature and quantity of the animals living upon and about these shoals, to which our Cape Ann fishermen annually resort for cod and halibut. Prof. Peirce, the Superintendent of the Coast Survey, who had detailed the steamer "Bache," Commander Howell, to make soundings on and about the bank, generously made accommodations aboard the steamer for the dredging party; and two naturalists, Messrs. S. I. Smith and O. Harger, assistants in the Yale College Museum, spent a portion of September aboard, and made several hauls with the dredge on the bank in about twenty fathoms, and again on the eastern edge of the bank in sixty-five fathoms, while

the most interesting results were obtained farther east towards the Gulf Stream at a depth of four hundred, and four hundred and thirty fathoms. At this depth the dredge brought up about forty species of invertebrate animals, among them *Schizaster fragilis*,* an arctic European sea urchin, *Eupyrus scaber*, an arctic holothurian, and numerous worms, together with *Pecten pustulosus* Verr., not before found on our coast. On the sandy bottom of the top of the bank the large *Pecten tenuicostatus* was abundant.

The season being late, they were obliged to relinquish the work for their duties at New Haven, and Messrs. Packard and Cooke, of the Peabody Academy at Salem, on the 11th of October, ran out from Boston in the Bache, and were able to make one day's dredging on the northeast end of the bank, in forty and forty-five fathoms, on the sandy and gravelly bottom near the crown of the bank, at or near the fishing grounds for cod and halibut; and then at the bottom of the bank in eighty-five, one hundred and ten, and one hundred and fifty fathoms, respectively, on a sandy, muddy bottom. The first haul of the dredge, made in one hundred and ten fathoms, proved exceedingly rich, bringing up numerous shells and worms, though few crustacea, but several spatangoids (*Schizaster fragilis*) and several sea pens (*Pennatula aculeata*) which had been dredged for the first time on this coast by Mr. Whiteaves in the Gulf of St. Lawrence in one hundred and sixty fathoms. The hauls made in one hundred and fifty fathoms also revealed these forms, and a singular starfish (*Solaster furcifer*), and *Archaster arcticus*, an additional species of

*This and the other species mentioned were identified by Prof. A. E. Verrill, who is publishing a résumé of the results in the current numbers of the American Journal of Science and Arts.

sea pen (*Virgularia Lyngmanni*) and other interesting mollusks and worms; while two actiniæ, one an enormous *Cerianthus* (*C. borealis*), ten inches in length and inhabiting a tough, slimy tube, and the other, *Bolocera Thedie* were discovered, together with *Thyone scabra*, and a Norwegian shell, *Arca pectunculoides* and *Neæra arctica*, and several new species of mollusks and worms. The marine fauna of this bank seems to be much like that of the Bay of Fundy, the Gulf of St. Lawrence, the banks of Newfoundland, and, in a less degree, the coast of Labrador. The discovery of the Pennatula, Schizaster and *Arca pectunculoides* also makes its relations with that of Norway intimate, and suggests that the assemblage of life at this region is a continuation of the Norwegian and arctic European deep sea fauna, and that it represents a continuous stream of arctic life pervading the ocean at great depths wherever the water is of sufficiently low temperature, from the polar regions to Cuba and Florida. The great abundance of life about the bank seems to show that the food for our edible fishes is in this region almost inexhaustible.

After exploring this bank the Bache pushed on nearly a hundred miles farther east and with some difficulty, owing to an approaching gale from the southeast, obtained soundings in thirteen hundred fathoms. The sea rising made dredging impossible, and the steamer was obliged from rough weather to run into Provincetown, and the weather continuing boisterous, to the great disappointment of all, made any further attempts impracticable. Every possible facility was extended by Commander Howell and officers Jacques, Hagerman, Jacob and Rush, who personally superintended the dredging operations, which were carried on by night as well as by day, and to them the success of the explorations was largely due.

Mr. F. W. PUTNAM of Salem made the following communication on an

ANCIENT INDIAN CARVING.

By the kindness of Dr. Palmer of Ipswich, I am enabled to exhibit a very interesting carved stone, which was found by an elderly lady while hoeing potatoes in her garden located at Turkey Hill, Ipswich.

Turkey Hill, situated between two small streams, and not far from the centre of the town, is a collecting ground well known to our local archaeologists from the large number of stone implements that have been found in its immediate vicinity, and is especially noted for the small arrowheads of white quartz and other stone that have been found there in considerable numbers. The discovery of the carved stone now exhibited will further identify the locality as one of interest to archaeologists.

This stone was evidently carved with care for the purpose of being worn as an ornament, and was probably suspended from the neck. It is of a soft slate, easily cut with a sharp, hard stone. The markings left in various places by the carver, showing where his tool had slipped, indicate that no very delicate instrument had been used, while the several grooves, made to carry out the idea of the sculptor, indicate as plainly that the instrument by which they were made, had, what we should call, a rounded edge, like that of a dull hatchet, as the grooves were wider at the top than at the bottom, and the striae show that they were made by a sort of sawing motion, or a rubbing of the instrument backwards and forwards. In fact, the carver's tool might have been almost any stone implement, from an arrowhead to a skin scraper, or any hard piece of roughly chipped stone.

The figure on the opposite page represents the stone of natural size, its total length being two and a half inches.

It is of general uniform thickness, about one-fifth of an inch, except where the angles are slightly rounded off on the front of the head and on the abdominal outline, and the portion representing the forked tail, or caudal fin, which is rapidly and symmetrically thinned to its edges, as is the notched portion representing the dorsal fin.

The carving was evidently intended to represent a fish, with some peculiar ideas of the artist added and several important characters left out. The three longitudinal grooves in front represent the mouth and jaws, while the transverse groove at their termination gives a limit to the length of the jaw, and a very decided groove on the under side di-

vides the under jaw into its right and left portions. The eyes are represented as slight depressions at the top of the head.

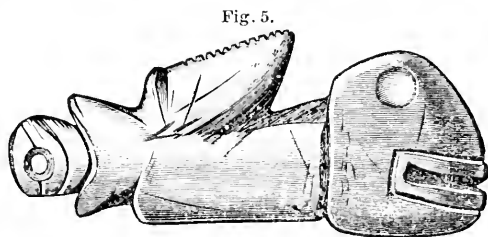


Fig. 5.

Natural size.

The head is separated from the abdominal portion by a decided groove, and the caudal fin is well represented by the forked portion, from the centre of which the rounded termination of the whole projects. In this part there is an irregularly made hole of a size large enough to allow a strong cord to pass through for the purpose of suspension. The portion of the sculpture rising in the place of a dorsal fin is in several ways a singular conception of the ancient carver. While holding the position of a dorsal fin, it points the wrong way, if we regard the portion looking so much like a shark's tooth as intended to represent the fin as a whole. It is very likely that the designer wished to show that the fin was not connected with the head and, as he was confined by the length of the

piece of stone, after making the head so much out of proportion, he was forced to cut under the anterior portion of the fin in order to express the fact. If we regard it in this light, the notches on the upper edge may be considered as indicating the fin rays; but the figure best shows the character of the sculpture, and persons interested can draw their own conclusions.

The symmetry of the whole carving is well carried out, both sides being alike, with the exception that the raised portion at the posterior part of what I have called the dorsal fin is a little more marked on the left side than on the right, and the edge on the same side is surrounded by a faint, irregularly drawn line.

The carving was, I think, unquestionably made by an Indian of the tribe once numerous in this vicinity and, as it was almost beyond a doubt cut by a stone tool of some kind, it must be considered as quite an ancient work of art, probably worn as a "medicine," and possibly indicated either the name of the wearer or that he was a noted fisherman.

Additions to the LIBRARY announced.

(Continued from page 152.)

By Donation.

OSGOOD, ALFRED, of Newburyport, Mass. History of Newburyport, by Mrs. E. Vale Smith, 1 vol. 8vo. Reports of the School Committee of Newburyport, 1811-1871, inc. 26 Nos.

PARSONS, C. W., of Providence, R. I. Hydrate of Chloral, by donor, 8vo pamph. PATCH, CHAS., of Hamilton, Mass. Miscellaneous Almanacs, 54.

PERKINS BROS., of Sioux City, Iowa. Directory of Sioux City, 1871-2, 1 vol. 8vo.

PERKINS, GEO. A. The Spirit of Missions, 8 nos.

PERRY, W. S., of Geneva, N. Y. Journal of the General Convention of the Protestant Episcopal Church, 1868, 1871, 2 vols. 8vo. Vestry Songs, 1 vol. 12mo. Trinity Psalter, 1 vol. 12mo. Miscellaneous pamphlets, 310.

STONE, B. W. Directory of New York City, 1869, 1 vol. 8vo. First Annual Report of the Board of Commissioners of the Department of Public Parks, 1 vol. 8vo. Miscellaneous pamphlets, 8.

SENNER, C., of U. S. S. Letter to the Colored Citizens, June 29, 1872, 8vo pamph.

TENNEY, RICHARD, of Georgetown, Mass. Catalogue of the Georgetown Peabody Library, 1 vol. 8vo. The Peabody Memorial Church in Georgetown. 1 vol. 8vo.

TOWNE, JOSEPH H. Mass. Register and Business Directories, 1852, 1853, 1854, 1855, 1858, 5 vols. 8vo. Condition of the Banks, 1857, 1858, 1860, 1861, 4 vols. 8vo. N. E. Mercantile Directory, 1849, 1 vol. 8vo. Comptroller's Report of the Currency, 1867, 1 vol. 8vo. Finance Reports, 1852-3, 1855-6, 2 vols. 8vo. Mass. State Record, 1851, 1 vol. 12mo. Blue Book, 1 vol. 12mo. Mass. Registers, 1830, 1832, 1833, 1834, 1835, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 17 vols. 16mo. Descriptive Register of Genuine Bank Notes, 1 vol. 4to. Hodge's American Bank Note, 2 vols. 4to. Miscellaneous pamphlets, 100.

U. S. PATENT OFFICE, of Washington, D. C. Official Gazette, July 23, Aug. 13, 20, 27, Sept. 3, 10, 17, 24, 1872.

WILLSON, E. B. Address by C. A. Bartol before the Essex Conference, Feb. 28, 1872. 8vo pamph.

WITHALL, ELIJAH, of Rochester, N. Y. Annual Catalogues of the University of Rochester, 1859-1872. 13 pamphlets.

YEOMANS, W. H., of Columbia, Conn. Mineral Resources of the U. S., 1867, 1 vol. 8vo. Report of the Conn. Board of Agriculture, 1871, 1 vol. 8vo. Reports of the Committee on the Conduct of the War, 1 vol. 8vo. Miscellaneous pamphlets, 28. Diplomatic Correspondence, 1865, 4 vols. 8vo.

By Exchange.

ACADÉMIE IMPÉRIALE DES SCIENCES BELLES-LETTRES ET ARTS IN BORDEAUX. Actes, 3e Série, 32e Année, 1870.

ACADEMY OF NATURAL SCIENCES OF PHILA., Proceedings of. Jan., Feb., Meh., Apr., 1872.

AMERICAN ACADEMY OF ARTS AND SCIENCES OF BOSTON. Proceedings of, pp. 137-296 of vol. viii. 1869-70.

AMERICAN ANTIQUARIAN SOCIETY AT WORCESTER. Proceedings of, Apr., 1872.

AMERICAN PHILOSOPHICAL SOCIETY OF PHILA., Proceedings of, Jan.-June, 1872.

BIBLIOTHÈQUE UNIVERSELLE ET REVUE SUISSE. Archives des Sciences, Physiques et Naturelles, Juin, Juillet, Août. Nos. 174-6, 1872.

CROSSE ET FISCHER. Journal de Conchyliologie. 3e Série. Tome xii. No. II, 1872.

INSTITUT HISTORIQUE IN PARIS. L'Investigateur, 4e Série. Tome x, Liv. 426, 427, 1870.

KÖNIGLIGA DANSKE VIDENSKABERNE SELSKAB IN KJÖBENHAVN. Oversigt, 1871. No II. 8vo pamph.

KÖNIGLIGA VETENSKAPS-SOCIETEN IN UPSAL. Nova Acta. Vol. viii, Fasc. 1, 1871. 4to pamph. Bulletin Météorologique Mensuel, vol. i, Nos. 1-12, 1868-9. Vol. iii, Nos. 7-12, 1871.

LITERARY AND PHILOSOPHICAL SOCIETY OF LIVERPOOL, Proceedings of the, Vol. xxv, 1870-71. 1 vol. 8vo.

NATURWISSENSCHAFTLICHEN GESELLSCHAFT "ISIS" IN DRESDEN. Sitzungs-Berichte, Jan., Feb., März, 1872.

NATURWISSENSCHAFTEN VEREIN IN BREMEN. Abhandlungen, Bd. III, Heft 1, 1872.

NEW JERSEY HISTORICAL SOCIETY. Proceedings of. 2nd Series, vol. iii, No. 1, 1872.

PEABODY INSTITUTE, Peabody, Mass., Twentieth Annual Report of the Trustees of the. 8vo pamph., 1872.

PHYSIKALISCH-MEDICINISCHE GESELLSCHAFT IN WÜRZBURG. Verhandlungen. Neue Folge, Bd. II, 4 Heft, 1872.

RHODE ISLAND HISTORICAL SOCIETY, Proceedings of, 1872. 8vo pamph.

SOCIÉTÉ D'ACCLIMATION PARIS. Bulletin Mensuel, 2me Série, Tome ix, 1872. Nos. 2, 3, 4, 5. 4 pamphlets.

SOCIÉTÉ D'ANTHROPOLOGIE PARIS. Bulletins, Tome vi, 11e Série, 2e Fascicule, 1871. 8vo pamph.

SOCIÉTÉ VANDOIZE DES SCIENCES NATURELLES OF LAUSANNE. Bulletin, vol. xi, Nos. 66-67. 2 pamphlets, 1871-2.

ST. GALLISCHE GESELLSCHAFT IN ST. GALEN. Bericht, Vereinsjahres, 1870-1.

VEREINS FÜR ERDKUNDE IN DARMSTADT. Notizblatt, Heft X, iii Folge. Nos. 109-121, 1871.

VERMONT STATE LIBRARY. Thirteenth and Fourteenth Registration Reports, 1869, 1870. 2 vols. 8vo. Catalogue of the Vermont State Library, Sept. 1, 1872. 1 vol. 8vo. Governor's Message of the State of Vermont, Oct., 1872. 8vo pamph.

WISCONSIN STATE HISTORICAL SOCIETY, Collections of, vol. vi, 1869-72, 1 vol. 8vo.

ZOOLOGISCHE GESELLSCHAFT, Zoologische Garten, xiii Jahrg., nos. 1-6. Jan.-Juli, 1872.

PUBLISHERS. American Naturalist. Canadian Naturalist. Christian World. Francis's Catalogue. Gardener's Monthly. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Ipswich Chronicle. Land and Water. Lawrence American. Little Giant. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Sailors' Magazine and Seamen's Friend. Salem Observer. Silliman's Journal. Western Lancet.



REGULAR MEETING, MONDAY, NOV. 4, 1872.

Meeting this evening at 7.30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence :—

From U. S. Dep't. of Interior, Washington, Oct. 28; Bergen, Norway, The Museum at, Sept. 22; Ipswich, Lyceum, Oct. 21; New York, Cooper Union, Oct. 23; Smithsonian Institution, Washington, Aug. 11; Boow, E. P., New York, Oct. 24, 31; Chever, D. A., Denver, Col. Ter., Oct. 28; Cleveland, N., Westport, Conn., Oct. 31; Ellis, George E., Boston, Oct. 29, Nov. 2.

The LIBRARIAN reported the following additions :—

By Donation.

COOPER UNION, of New York. Report of the Metropolitan Board of Health, 1869, 1 vol. 8vo. Nineteenth Annual Report of the Prison Association of New York, 1861, 1 vol. 8vo. Tehuantepec Railway Company, 1869, 1 vol. 8vo. Annual Report of the Board of Education, 1859, 1 vol. 8vo. Report of the Board of Immigration of the State of Missouri, 1865-66, 1 vol. 8vo. Comptroller Report of City of New York, 1861, 1 vol. 8vo. Miscellaneous pamphlets, 11.

GILLIS, JAMES A. German Encyclopædie, 1 vol. 4to. Maps to Gibson's Report, 1 vol. 8vo. French Statistics, 1 vol. 8vo. National Magazine and Industrial Record, 1845, 1846, 2 vols. 8vo. Archivo Americano, 1 vol. 4to. Spurzheim's Outlines of Phrenology, 1 vol. 12mo. Spanish Teacher, 1 vol. 16mo. German Phrase Book, 1 vol. 12mo. Tariff, by James Campbell, 1 vol. 8vo. Revenue Book, by A. Jones, 1 vol. 8vo. Flügel's Dictionnaire, 1 vol. 8vo. Nature Displayed, 2 vols. 8vo. Patent Office Report, 1848, 1 vol. 8vo. Commerce and Navigation of the U. S., 1830-45, 8 vols. 8vo. Tobacco Statistics, 3 vols. 8vo. Obituary Addresses on the Death of Hon. W. R. King, 1 vol. 8vo. Tables showing the Trade of the United Kingdom with different Foreign Countries and British Possessions, 1834-41. Commercial Tariffs and Regulations, 5 pamphlets. Commercial and Financial Legislation of Europe and America, 2 vols. 8vo. The Daily Union, 27 nos. Tableau Général du Commerce de la Belgique, 2 vols. folio. The Southerner, 38 nos. Miscellaneous pamphlets, 179.

GREEN, S. A., of Boston. Miscellaneous pamphlets, 41.

KIMBALL, JAMES. Abstract of the Seventh Census, 1 vol. 8vo. I. O. of O. F., Digest of the Laws of the Order, 1 vol. 12mo. Miscellaneous pamphlets, 70.

LEE, JOHN C. Commercial Bulletin, Oct. 12, 19, 1872.

PATCH, G. W., of Marblehead, Mass. Manuals for the General Court, 1863, 1864, 1866, 3 vols. 16mo. Christian Union, 60 nos. Independent, 1856, 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868. Our Dumb Animals, 12 nos. The Macedonian and Home Mission Record, 37 nos. American Missionary, 46 nos. Miscellaneous pamphlets, 90.

U. S. DEPARTMENT OF THE INTERIOR. House Miscellaneous, 3d Sess., 41st Cong., 1869-70, 5 vols. 8vo. 3d Sess., 41st Cong., 1870-71, 2 vols. 8vo. Foreign Relations of the U. S., 3d Sess., 41st Cong., 1870-71, 1 vol. 8vo. Finance Report and Report of Comptroller of the Currency, 3d Sess., 41st Cong., 1870-71, 1 vol. 8vo. Report of the Department of Agriculture, 3d Sess., 41st Cong., 1870-71, 1 vol. 8vo. Reports of the Committee of the House of Reps., 3d Sess., 41st Cong., 1870-71, 1 vol. 8vo. Senate Documents, 3d Sess., 41st Cong., 1870-71, 1 vol. 8vo. Senate Miscellaneous, 2d Sess., 41st Cong., 1869-70, 1 vol. 8vo. 3d Sess., 41st Cong., 1870-71, 1 vol. 8vo. Senate Journal, 3d Sess., 41st Cong., 1870-71, 1 vol. 8vo. Senate Reports, 3d Sess., 41st Cong., 1870-71, 1 vol. 8vo. House Journal, 3d Sess., 41st Cong., 1870-71, 1 vol. 8vo. Executive Documents, 3 Sess., 41st Cong., 1870-71, 5 vols. 8vo. Report of the Secretary of War, 3d Sess., 41st Cong., 1870-71, 2 vols. 8vo. Report of the Secretary of the Navy and Postmaster General, 3d Sess., 41st Cong., 1870-71, 1 vol. 8vo. Patent Office Report, 1870-71, 1 vol. 8vo. Report of the Secretary of the Interior, 3d Sess., 41st Cong., 1870-71, 2 vols. 8vo.

U. S. PATENT OFFICE. Official Gazette, Oct. 8, 1872.

By Exchange.

BOSTON PUBLIC LIBRARY. Bulletin for Oct., 1872. 8vo pamph.

IOWA STATE HISTORICAL SOCIETY. The Annals of Iowa, July, 1872. 8vo pamph.

NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY. Register and Antiquarian Journal, Oct., 1872. Vol. xxvii, No. IV. 8vo pamph.

NEW YORK GENEALOGICAL AND BIOGRAPHICAL SOCIETY, Record of. Oct., 1872. 8vo pamph.

PUBLISHERS. American Journal of Science and Arts. American Naturalist. Christian World. Gloucester Telegraph. Haverhill Gazette. Historical Magazine. Ipswich Chronicle. Land and Water. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem Observer.

THE ORIGIN OF SURNAMES.

A communication was read from GEORGE H. DEVEREUX of Salem on the origin of surnames. This subject is receiving considerable attention, especially since so many persons devote their time and leisure to genealogical and historical researches, and, from the records and papers on file in our various state, town, parish and other offices, have gleaned and published many facts that will tend to elucidate more fully the history of the past and delineate the character of the early pioneers and their immediate descendants in the settlement of this country.

The paper was an ably prepared document and commenced with a few brief remarks upon general language. It then proceeded to the special consideration of the names of persons and places, as now extant in the English language. We give the following condensed synopsis of this portion.

All names had, originally, a significance of their own, derived from some peculiarity of person, place or prominent circumstance. We have grown so familiar with them, as merely arbitrary designations, that we pay no heed to this special meaning, which no longer has, in most cases, any particular applicability; and we talk of a man called Lion or Hare, King or Straw, without a moment's thought of the idea once conveyed when the name was primarily given. The meaning of many biblical, classic, Saxon, Italian, French and other designations was then stated, as well as some of Puritanic and fanciful origin. In the earliest times no person had more than one name, as John, Peter, Albert, etc. But in process of time it was found necessary to distinguish individuals of the same designation, of whom there would soon be many in every neighborhood, by superadded descriptions.

These were what we call surnames and became, by transmission from father to son, family names. The various modes in which these originated and grew up were then systematically explained.

The most obvious would be from personal peculiarities. As, of two Johns in one neighborhood, one would soon become known as John the Long, and another as John the Short. Hence we get all the Shorts, Longs, Whites, Blacks, Browns, etc.

Next, children came to be particularized after their parents, as John, Robert's son, or John Robertson, James, William's son, or James Williamson, and so on. Again, men got names from their occupations, as John the Smith or soon simply John Smith, Hugh the Miller or Hugh Miller. So in other languages, as the Scotch synonymes of Baxter or Baker, Thaxter or Thacher, etc.

Then we find many getting titles from their residence. Noblemen, it is well known, are called from their estates. So through all ranks, as Peter of the Lane, Sam on the Hill, Jem of the Meadows, etc., and in this way grow up in time countless family appellatives, as Lanes, Hills, Meadows, Heaths, Dales, Downs, Forests, Brooks, Rivers and the like. Of this class, too, are Greenwood, Underwood, Redfield and many similar.

Parts of the human body and various objects of nature, plants, animals, even minerals, have by some singular association, hopeless now to trace, given special designations to individuals first, and then to families. For instance, Head, Leg, Foote, Blood, Ash, Birch, Root, Branch, Hedge, Straw, Peach, Pear, Thorn, Berry, Rice, Millet, Hare, Fox, Badger, Bull, Partridge, Sparrow, Bird, Drake, Fish, Pollock, Herring, etc., and Stone, Jasper, Marble, Jewell and many more of similar character.

Very many of these names are, when we consider their actual signification, extraordinary and surprising, and we cannot but wonder how a man could ever come to be called a Wolf, a Hog, a Crane, a Gull, or by so curious a title as Moon, Salt, Doll, Pinchbeck and others quoted equally strange. These anomalies and eccentricities were analyzed and explained by references to heraldic bearings, jocose and familiar sobriquets or nicknames, corruptions, abbreviations, etc. A great many singular and striking instances were given, and elucidated by explanations yet available in history, social customs and records and derivations of various sorts, from which light may yet be thrown upon these apparent vagaries. A large number, seemingly utterly incomprehensible at first sight, were traced to their incidental origins, and the curious transformations they had undergone clearly developed. A long list was also given of grotesque and unaccountable appellatives, of the origin of which no reasonable conjecture seems to be now possible.

The nomenclature of places, towns, cities, castles, estates, etc., was fully investigated, and followed up through contractions and the corruptions of time to its sources in the primitive Celtic of the Britons, the Saxon, the Latin terms of the Romans and the Norman French introduced by the conquest. The frequent transfer of these to family names was also illustrated by examples. The changes effected by translation into other languages were considered too, and made plain by numerous instances.

The system of nomenclature of the Greeks and Romans was briefly described, and its analogies with the customs of later times noticed.

It is impossible in this compendium to note even all the leading points of the essay. Of course, we cannot recapitulate here the large number of carefully collected

and arranged illustrations; or follow out the theory and state the conclusions deduced, either upon general or special instances. Our narrow space is inadequate to give a competent view of a thoroughly digested and systematic analysis of such a subject.



REGULAR MEETING, MONDAY, NOV. 18, 1872.

Meeting this evening at 7.30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence:—

Bremen, Naturwissenschaft verein, Sept. 7; Brunn, Naturforschende verein, Apr. 2; Cherbourg, Société Nationale des Sciences Naturelles, Juillet; Chicago Academy of Sciences, Oct. 8; Danvers, Peabody Institute, Nov. 7; Sacramento, Agassiz Institute, Nov. 1, 3; Chipman, R. M., Lisbon, Conn., Nov. 8; Foster, J. W., Chicago, Ill., Nov. 11; Levette, Gilbert M., Indianapolis, Nov. 9; Newberry, J. S., New York, Nov. 13; Perry, W. S., Geneva, N. Y., Nov. 14; Pimpelly, Raphael, St. Louis, Mo., Nov. 11; White, C. A., Iowa City, Iowa, Nov. 11; Waters, J. Linton, Chicago, Ill., Nov. 9; Woods, Katie T., Salem, Oct. 24.

The letters from the "Agassiz Institute," the one by Dr. Thomas M. Logan, the President, the other by the Corresponding Secretary, Rev. J. H. C. Bonté, may be especially noticed, as officially announcing the organization of a scientific institution under the above name in Sacramento; and sending "its first greeting to the Essex Institute, Salem, Mass." "In framing our constitution and laws," Rev. Mr. Bonté writes, "we have used yours as our model, and we therefore address you first. Our opportunity for adding material for the study of natural history is, we think, great, and we begin with great hopes of a splendid future."

The LIBRARIAN reported the following additions :—

By Donation.

- FOOTE, C. Files of several County Papers, Aug., Sept., Oct., Nov., 1872.
 KIMBALL, JAMES. Freemason's Monthly Magazine, 1859-68, 10 vols.
 LEE, JOHN C. Commercial Bulletin, Oct. 26, Nov. 2, 1872.
 LOGAN, THOMAS M., of Sacramento, Cal. Report of the California State Board of Health, 1870-71, 1 vol. 8vo.
 PEABODY ACADEMY OF SCIENCE. Fourth Annual Report, 1871. 8vo pamph.
 SIBLEY, J. L., of Cambridge, Mass. Catalogus Universitatis Harvardianæ, 1872. 8vo pamph.
 U. S. PATENT OFFICE. Official Gazette, Oct. 15, 22, 29, 1872.
 WILLIAMS, HENRY L. Miscellaneous pamphlets, 4.

By Exchange.

- CROSSE ET FISCHER, Paris, France. Journal de Conchyl. Tome xii. No.3, 1872.
 GEOLOGICAL SURVEY OF CANADA. Report of Progress for 1870-71. 8vo pamph.
 INSTITUT HISTORIQUE, of Paris, France. L'Investigateur, Jan.-Juin, 1872.
 L'ACADÉMIE IMPÉRIALE DES SCIENCES DE ST. PETERSBOURG, Bulletin of. Tome xvi, Nos. 1-6. Tome xvii, Nos. 1-3. Memoires. Tome xvii. No. 12, 1871. Tome xviii, Nos. 1-6, 1872.
 LITERARY AND HISTORICAL SOCIETY OF QUEBEC, Transactions of, 1871-72. New Series, Pt. IX. 8vo, 1872.
 NATURFORSCHENDEN VEREIN IN BRÜNN. Verhandlungen, Bd. ix, 1870.
 PHILADELPHIA ACADEMY OF NATURAL SCIENCES, Proceedings of. Pt. II. May-Sept., 1872. 8vo pamph.
 SOCIÉTÉ D'ANTHROPOLOGIE, Paris, France. Bulletin. Tome vi. 11e série, 3e fascicule. Oct., Nov., 1871. 8vo pamph.
 SOCIÉTÉ NATIONALE DES SCIENCES NATURELLES, Cherbourg, France. Memoirs. Tome xvi, 1871-72. 8vo pamph.
 SOCIÉTÉ ROYALE DES ANTIQUAIRES DU NORD KJØBENHAVN. Memoires, Nouv. Ser., 1870-71. 2 pamphlets, 8vo. Tillaeg til Aarbøger for Nordisk Old-Kyndighed og Historie, 1870, 1871. 2 pamphlets, 8vo.
 PUBLISHERS. Asher's Catalogue. Essex County Mercury. Gloucester Telegraph. Haverhill Gazette. Historical Magazine. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem Observer.

The PRESIDENT called the attention of the Institute to a package of old papers recently presented by Mr. Eben G. Berry of Danvers. Several of the papers were read, and were interesting, showing the spirit of the times in which they were written. The following may be specified :

The commission of Benjamin Berry to be Ensign of the third Foot company in the town of Andover in the 4th Regiment of Militia in the County of Essex, whereof

Rich. Saltonstall, Esq., is Col. ; signed by Wm. Shirley, dated 2 July, 1754.

Bill of sale, Mr. George Daland of Salem to Mr. Benjamin Berry of Andover, for a negro named "Fortune," dated Aug. 30, 1756.

Warrant from Hon. Henry Gardner, Treasurer of Mass., to Benjamin Berry, constable or collector, dated 21 Feb., 1777, to collect the tax of 277£ 7s., assessed upon the town of Andover.

A summons from the selectmen of Andover to Capt. Benjamin Berry, surveyor of highways, dated March 19, 1767, requiring him to see that each person, named in this list, work out the sum annexed to their names in the months of May or June next ensuing, on the roads hereafter mentioned.

Several deeds of land, also military orders, for calling out the militia for inspection and parade.

Some of the papers proved that the "treating to the drinks" on every occasion of purchasing a new saddle or article of dress, etc., was a custom of that period, and a certificate of its performance was given. Thus :—

Andover, August 19, 1750.

This may Certify All Home It may Concern, That Mr. Benjamine Berry Hath Paid Suffitient Beaverige For A New Red Plush Saddle and lite Colard Housen To The Full Satisfaction of The Subscribers Hereof.

Henry Abbot.

Henry Abbot, Jr.

Andover, March the 19 day, 1756.

This may Certify All Home it may Concern that Benjamin Berry junr Hath Paid suffitient Beaverige for A new blew sarge Coot with blew morehare buttens with

A red lining to the full satisfaction of the subscribers hereof.

Benja. Berry.

Mary Robinson.

Mr. F. W. PUTNAM exhibited a photograph of a human skeleton found in a cave in France. This photograph, which had been sent to the Peabody Academy of Science by Mr. S. H. Seuddler, formerly of the Boston Society of Natural History, now residing in Mentone, France, showed the skeleton, as found in the cave. Mr. Putnam, taking the photograph for his text, spoke of the great antiquity of man, as proved by the finding of human bones and the works of man in various caves in Europe, and in the river drift of various places.



THE ADJOURNMENT OF THE QUARTERLY MEETING from Wednesday the 13th inst., was then held.

Daniel B. Hagar was unanimously elected Vice President of the Department of the Fine Arts, to fill the vacancy caused by the resignation of George Peabody.

Arthur S. Rogers of Salem, Solomon Varney of Salem and John Todd Moulton of Lynn, were elected resident members.

Voted, That the regular meetings in December be held on the 2d and 4th Monday evenings in lieu of the 1st and 3rd.

BULLETIN

OF THE

ESSEX INSTITUTE.

VOL. 4. SALEM, MASS., DECEMBER, 1872. No. 12.

One Dollar a Year in Advance. 10 Cents a Single Copy.

REGULAR MEETING, MONDAY, DECEMBER 9, 1872.

Meeting this evening at 7 30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.

The evening was occupied by the reading of a communication, by Mr. John Robinson, on

FERNERIES, HOW TO MAKE THEM, AND WHAT TO PUT IN THEM.

Fern cases, or ferneries, as most of us call them, were originally called Wardian cases, in honor of their inventor, Dr. B. N. Ward of London, who published a book upon the subject in 1842. These cases are only a modification of the handglass always used to force or protect plants in the greenhouse or open air; yet the placing of this in a practical way renders it easy to import the plants of foreign tropical countries, which otherwise could never be seen here in a living state, besides enabling us to grow at home as beautiful ferns and other delicate, moisture-loving plants as are seen in the hot-house or conservatory.

The fern case, as it comes from the cabinet-maker's, is

a handsome piece of furniture, but an expensive one ; so expensive, perhaps, as to deter many from possessing a fernery. This need not be, for at home a case can be made just as serviceable, and having some advantages even over the expensive ones.

Procure from your carpenter a good pine board, of the dimensions you may wish, for the base of your structure, which by the way should be about one-third longer than wide. Next obtain a suitable moulding, black walnut is the best, and fit it around the base board as if it was a picture frame on end. Next have a zinc pan made to fit closely inside of this, coming up to the top of the moulding ; do not have any turned over edge or ring to the pan, as they are of no use, neither should the pan be made first, as it is difficult to make a neat box to fit outside it. Have the pan painted on the inside with a good coat of tar, as the delicate roots of the plants dislike to come in contact with a metal surface. Next comes the glass, and here is where most persons fail. Be sure the glass is inside the pan, and never have the pan inside the glass, for the moisture collecting on the glass runs down outside the pan to the woodwork, rotting it, and very likely between the moulding and base board on to the table or what else the case rests on, causing much trouble ; also, in watering, the glass directs the water in like manner, with the same, if not worse, results.

A good proportion for the glass is to have it as high above the base as the case is wide, and it should go to the bottom of the pan ; have the corners true and the top level, that the plate of glass which covers the top, and which should be one-fourth of an inch larger all around, shall be even. With common flour paste attach narrow strips of cloth up over the corner angles on the outside and but only an inch or so down the inside from the top.

When dry, paste some dark paper over it, so as to cover the cloth, also around the top plate of glass to prevent the edge from cutting your hands ; no cloth is necessary for this. Fill and oil the black walnut moulding, and the case is complete.

A still more simple one is to tar the inside and paint the outside of a shallow pine box, and place the glass directly inside it. If you intend purchasing a handsome case, it will be better to have one made to order, as all the ready made ones usually offered for sale have the case poorly and incorrectly constructed in more ways than one ; nearly all have flat tops, to be avoided where there is woodwork (the home made case having no woodwork at the top, it is not a disadvantage). One advantage possessed by the expensive case is that the whole top takes off, enabling you to work all around and not entirely from overhead. Here you may construct ruins, grottos, arches, etc., with pumice and cement ; pumice is so light that it adds but little weight to the case, and the cement will bind the whole together as firmly as one rock, all at a very slight expense, at the same time adding much to the beauty of the interior. Very neat circular cases are for sale at the stores, and can be filled so as to be very attractive ; they can also be used as fern nurseries. To do this, make the earth damp and firm on top, having first placed a few small pieces of broken flower pots in the upper soil. Take a leaf of some fern, or several different species of ferns, if you desire, that have the fruit quite ripe ; this can be discovered by shaking over white paper, when, if ripe, a brown powder will come off ; these are the spores or seeds. Dust these over the prepared earth, replace the glass, and leave the case in a warm shady corner. In a few weeks, if not permitted to become dry, a green scum will appear, which in time

will transform itself into the most beautiful little ferns, that may be separated, potted, or transferred to other cases.

Now to fill the case. First make, if the pan be three inches deep, about one inch in depth of drainage, pebbles, charcoal, broken bricks, or, better still, broken flower pots; over this a thin layer of moss or coarse fibrous stuff of some sort to prevent the earth washing into the drainage and choking it. Some cases have holes in the bottom and glass receptacles for superfluous water; but if care be used in watering, this will be entirely unnecessary. For soil suitable to grow most plants likely to be in the fernery, a mixture of one part sand, one part peat, two parts light pasture loam (leaf mould may be used for peat), will do well. The earth should be heaped up a little in the centre, or if the case is large two or three little elevations may be made; upon these place the larger ferns or plants, with the others distributed around them. A log of wood covered with moss and small ferns is a very pretty centre piece, and to cover the ground the little running *Selaginella*, common in all greenhouses, answers better than almost anything else, except our own native mosses, which must be treated with care, or else they mould or dry up.

Ferneries may be divided, if you like, into two classes, dormant and active. By dormant I mean such as contain plants which lie at rest during the winter months, chiefly our natives and others like them in habit that have been introduced. These it is well to arrange separately, as they require less heat than the species growing all the year round, chiefly from the tropics, which form the active fernery. The dormant fernery can be made very interesting, the plants in it keeping about the same all the winter, but growing towards spring; and as many like

the pleasure of filling their case every fall, this is as good a way as any to do, as it is a pretty ornament for winter, and in summer need not be cared for. Of the two thousand exotic species known to exist, but three hundred probably can be purchased in this country, and of these comparatively few are suitable to grow in the case. Most of the smaller growing species for sale hereabouts will do, particularly those of *Pteris*, *Doodia*, and *Adiantum* (maiden hair ferns). Gold and silver ferns require care, as the yellow and white farina washes off in watering. Besides ferns, *Begonias*, *Dracenas* and *Marantas* do well for the centre of a case, and many others can be tried; even if they do not succeed there is a pleasure in experimenting.

In New England there are about the same number of ferns as in Old England, forty-five or six. About Salem, say within ten miles' radius, there are sixteen genera, twenty-nine species; of these, few are suited to the fernery. The larger ones grow well in the garden, on the northerly side of a fence or building. Of the smaller ones, the ebony spleenwort, two or three of the *Aspidiums* or shield ferns, the *Asplenium Trichomanes*, do well; the climbing fern will look pretty for a while and some of the ferns which lose their foliage at the frost, will, if their roots be planted just under the moss, grow toward spring, such as the beech ferns, hay scented ferns, New York ferns and others. The moonwort, and common polypody which grows every where, should never be left out, and the harts tongue, and walking ferns, are valuable accessions if they can be had. This comprises about all the native ferns of use that can be collected here, but there are many little plants to associate with them which add much to the beauty of the case. The partridge berry (*Mitchella repens*) can be gathered in bunches, regardless

of roots, tucked in the moss and earth, where it will grow, bloom, and often fruit.

The rattlesnake plantain (incorrectly called adder's tongue), the *Hepatica*, gold thread, *Linnea*, all do well, and club mosses, wintergreen, checkerberry, all add to the effect. The larger foreign and native ferns may be grown in an open fernery, which should be in a room with as moist air as possible.

Do not drown your plants. Persons frequently ask, "How often shall I water my plants?" It is impossible to answer, except to say "whenever they are dry;" with the same amount of water per day, in a cool room the earth in a flower pot would be mud, while in a hot room it would be powder in a few hours. To avoid pests, mould, etc., sprinkle the ferns occasionally and give air an hour or more every day. Wiping off the moisture from the glass will take away many impurities. Cases sprinkled often seldom require watering, and it is surprising how long life will last on a small supply of water. I once planted in the bottom of an olive bottle a fern and some moss, corked it, and sealed the top over with sealing wax, placed it upon a light shelf, and left it; the fern flourished about a year, and weeds which sprang up lived six months longer; life lasted eighteen months in all, without the addition of a single drop of water.

Do not place the fernery at the southern window, in the full glare of the sun; an eastern or western one is better; turn it around every week that the plants may grow evenly. The case may be filled in August, to be established by winter. Some fill them as early as June, others not till October, but August is the best for the tropical fernery; the natives need not be attended to till September, if you like. Not only may ferns be grown in cases but some species are very beautiful as basket or pot plants.

A cocoanut may be formed into a very neat basket by sawing off the top and burning holes half an inch across all over the shell with two small ones at the top opposite each other for the wire to suspend it by ; if in this a fern is planted which has running roots with leaf buds, the effect is in time to cover the whole shell with the beautiful foliage, as these little roots find their way to every hole before long. For this, *Adiantum setulosum* and *A. Æthiopicum* are the best. Baskets to hang in the top of a fern case may be made of thin pliable bark, wired together. Wire baskets lined with moss and filled with earth are fine for ferns with stems which run on top of the soil, such as most of the *Davallias*, *Polypodium aureum* a native of Florida, and others. The hare's foot fern is one such, throwing out woolly feet in advance of the leaves. A log hollowed out on one end is most suitable to grow the stag horn ferns upon ; they will in time form huge crowns on the top of the log, while little creeping species may be grown successfully on the side at the same time if wired on with a little moss and earth. Hollow stone ware pillows are made with pockets in the sides, the centre filled with earth, ferns planted in the pockets, and the whole covered with a bell glass. Wire netting can be formed into a tube filled with coarse earth, and ferns inclined to climb by rooting stems, as the ivy does, can be made to cover it with foliage. In fact, there is no end to the variety of design that can be introduced into the fernery whether it be a simple bell glass or a structure one hundred feet long by forty wide and high. Of this latter class of ferneries most beautiful ones are described in foreign books, where sometimes the side walls are of turf covered with the creeping *Lycopods* and ferns, while little brooks, mimic waterfalls and ponds add both to the beauty of the place and to the air, the moisture necessary for the

health of the plants. This is called the natural cultivation of ferns, and approaches as near as possible to their natural habitat. It is to be hoped that such will soon be established by our wealthy amateurs on this side of the water, as it is much more instructive than the ordinary way of growing these plants, and that there will be a steady increase in the already growing interest in ferns and ferneries.

The evening was made more enjoyable and the remarks much more interesting and clear by the exhibition of ferneries and plants upon the platform illustrating the subject. They were chiefly as follows: A large black-walnut fern-case (cabinet-maker's pattern) containing stone grotto and choice tropical ferns, *Selaginellas*, *Begonia rex*, etc.; a square home-made case (large) containing native plants entirely; circular fernery (large) containing tropical plants; log with a fine specimen of *Platycterium alaicorne*, stag horn fern growing upon the top, other ferns and mosses on the sides; wire basket with *Davallia*; cocoanut shells with maiden-hairs; bell glass with *Adiantum Capillus-Veneris* or English maiden-hair, also other ferns in pots, cut fronds, etc.

Ferns suitable for ferneries which can be purchased at the greenhouses at fifty cents or less:—

<i>Pteris serulata</i> ,	<i>Adiantum Capillus-Veneris</i> ,
“ <i>argyrea</i> ,	“ <i>affine</i> ,
“ <i>longifolia</i> ,	“ <i>Æthiopicum</i> ,
“ <i>tremula</i> ,	“ <i>cuneatum</i> ,
“ <i>cretica</i> , var. <i>albo-lineata</i> ,	“ <i>fulvum</i> ,
<i>Pelkea rotundifolia</i> ,	“ <i>hispidulum</i> ,
“ <i>hastata</i> ,	<i>Aspidium molle</i> .
<i>Gymnogramme sulphurea</i> ,	<i>Selaginella Martensii</i> ,
“ <i>calomelanos</i> ,	“ <i>densa</i> ,
<i>Doodia caudata</i> ,	“ <i>Braunii</i> ,
<i>Asplenium Mexicanum</i> ,	“ <i>Kraussiana</i> ,
<i>Onychium Japonicum</i> ,	“ <i>uncinata</i> .

The SECRETARY announced the following correspondence :—

From E. A. Andrews, Lancaster, Fairfield Co., Ohio, Nov. 22; John Collett, Indianapolis, Ind., Nov. 18; C. W. Jenks, Philadelphia, Penn., Nov. 23; John Todd Moulton, Lynn, Nov. 25; G. C. Swallow, Columbia, Boone Co., Mo., Nov. 20; Henry White, New Haven, Conn., Nov. 29; A. Winchell, Ann Arbor, Nov. 25; Berwickshire, Naturalists' Field Club, Aug. 26; Bogota, La Sociedad de Naturalista Colombiano; Brooklyn, N. Y., Mercantile Library Association, Nov. 21; Danvers, Peabody Institute, Dec. 2; Lund, Die Carolinische Universitate, Aug. 1; Würzburg, Die Physikalische Medicinische Gesellschaft, Aug. 28.

THE LIBRARIAN reported the following additions :—

By Donation.

AGASSIZ INSTITUTE, of Sacramento, Cal. Constitution and By-laws of. 8vo pamph. 1872.

CLOGSTON, WM., of Springfield, Mass. Oswego County Directory, 1866-7, 1 vol. 8vo. Utica City Directory, 1858-9, 1 vol. 12mo. Bangor Directory, 1867-8, 1 vol. 12mo. Brattleboro Directory, 1871-2, 1 vol. 8vo. Ontario County Directory, 1870, 1 vol. 12mo. Directory of Cities and Villages on the line of the Boston & Albany Railway, 1869-70, 1 vol. 8vo. Erie Business Directory, 1867-8, 1 vol. 8vo. Directory of Binghamton, Elmira, Ithaca and Oswego, 1864-5, 1 vol. 12mo. Janesville Directory, 1859-60, 1 vol. 12mo. American Advertising Directory, 1831, 1 vol. 12mo.

FARMER, MOSES G. Patent Office Reports, 22 vols. 8vo. Department of Agriculture, 4 vols. 8vo. Finance Report, 1870, 1 vol. 8vo. Commercial Digest, 1 vol. 8vo. Compendium of U. S. Census, 1850, 1 vol. 8vo. Cyclopædia of Commerce, 1 vol. 8vo. The Practical Model. 7 nos. Journal of the Telegraph. 72 nos. Engineering. 32 nos. Journal of Chemistry. 24 nos. Salem Directories for 1851, 1853, 1855, 1857, 1859, 1861, 6 vols. 12mo; 1866, 1869, 2 vols. 8vo. Congressional Globe 1855-6, 2 vols. 4to. Scientific American, 4 vols. folio. Miscellaneous pamphlets. 65. Scientific American, 610 nos.

GREEN, S. A., of Boston. Miscellaneous pamphlets. 20.

LEE, JOHN C. Commercial Bulletin, Nov. 9, 16, 1872.

MIDDLESEX MECHANICS' ASSOCIATION, Lowell, Mass. By-laws etc., of the Library and Reading Room, 8vo pamph. 1872.

U. S. PATENT OFFICE. Official Gazette for Nov. 5, 12, 1872.

By Exchange.

ARCHIV DER ANTHROPOLOGIE IN BRAUNSCHWEIG. Band v, Heft III, 1872. 4to pamph.

BERWICKSHIRE NATURALISTS' CLUB. Proceedings of, 1871-2, 8vo pamph.

GEOLOGICAL AND POLYTECHNIC SOCIETY OF THE WEST RIDING OF YORKSHIRE. Proceedings of, New Series Pt. I, pp. 1-56, 1871-2. 8vo pamph.

KÖNIGLIGA UNIVERSITETS LUND SWEDEN. Lund Universitets Biblioteks Accessions Katalog, 1869, 1870, 1871. 3 pamphlets 12mo. Acta Universitatis Lundensis, 1868, 1869, 1870. 7 pamphlets 4to.

NATURHISTORISCHEN GESELLSCHAFT ZU HANNOVER. Einundzwanzigster gahresbericht, 1870, 1871. 8vo pamph.

NATURHISTORISCHEN VEREIN DER PREUSSISCHEN RHEINLANDE UND WESTPHALENS IN BONN. Verhandlungen, xxviii, xxix. Jahrg. 1871, 1872. 2 pamphlets 8vo.

NATURWISSENSCHAFTLICHEN VEREINE ZU BREMEN. Abhandlungen Band iii. Heft II, 1872. 8vo pamph.

PHILOSOPHICAL AND LITERARY SOCIETY. Annual Report for 1871-2. 8vo pamph.

PHYSIKALISCH-MEDICINISCHE GESELLSCHAFT IN WÜRZBURG. Verhandlungen, Neue Folge. Bd. iii. Heft I, 2, 1872.

SOCIÉTÉ D'ACCLIMATATION, Paris. Bulletin Mensuel. Tome ix, Nos. 6, 7, 1872. 2 pamphlets, 8vo.

VERMONT STATE LIBRARY. Vermont Legislature Directory, 1872-3. 1 vol. 12mo. Montpelier, 1872.

PUBLISHERS. American Journal of Science and Arts. American Naturalist. Christian World. City Post. Gloucester Telegraph. Haverhill Gazette. Historical Magazine. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Sailors' Magazine and Seamen's Friend. Western Lancet.

The SUPERINTENDENT of *Museum* reported the following :—

From FARMER, MOSES G. Portrait of Bishop Griswold.

LAMSON, F. Paper-weight, formerly belonging to Charles Dickens, bought in London by donor.

MARSH, Miss MARY. A Loom, used in the farmer's family in the last century.

PORTER, Miss M. A. View of Northey's Block, built in 1872.

STIMPSON, JAMES C. Relics from the Boston Fire, November, 1872.



REGULAR MEETING, MONDAY, DECEMBER 23, 1872.

Meeting this evening at 7 30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence :—

From T. C. Amory, Boston, Dec. 19; Jacob Batchelder, Lynn, Dec. 5, 18; P. A. Hanaford, New Haven, Dec. 12; Charles V. Hanson, Peabody, Dec. 13; Alfred Osgood, Newburyport, Dec. 13; Proctor Bros., Gloucester, Dec.; Buffalo Historical Society, Dec. 19; Peabody Institute, Danvers, Dec. 11; New Jersey Historical Society, Dec. 21.

The LIBRARIAN reported the following additions :—

By Donation.

AMORY, THOMAS C. Our English Ancestors. 8vo pamph. A Home of the Olden Time. 8vo pamph.

BOARDMAN, S. L., of Augusta, Me. Agriculture of Maine, 1871. 1 vol. 8vo. Water Power of Maine, 1 vol. 8vo, 1870. Report of the Commissioners on "Paper Credits," 1870, 1 vol. 8vo. Miscellaneous pamphlets, 7.

CHAPMAN, G. R. Annual Report of the American Board of Commissioners for Foreign Missions for 1872. 8vo pamph. Sermon by Dr. Bartlett at the Annual Meeting in New Haven, Ct., Oct. 1, 1872. 8vo pamph.

GREEN, S. A., of Boston. Miscellaneous pamphlets, 5.

HAMMOND, J. Memoirs of Russia from 1727 to 1741. 1 vol. 8vo. London, 1773.

LEE, JOHN C. Commercial Bulletin, Dec. 7, 1872.

PEARSON, GEO. H. Proceedings of the Grand Lodge of the Most Ancient and Honorable Fraternity of Free and Accepted Masons of Mass., Mch. 8-Dec. 27, 1871. 1 vol. 8vo.

STONE, JOSEPH W. Salem Directories for 1812, 1850, 1853, 3 vols. 12mo.

U. S. PATENT OFFICE, Washington, D. C. Official Gazette, Nov. 26, Dec. 3, 1872.

WHITE, CAPT. A. H., of Boston. The White and Haskell Family, compiled by P. Derby. 1 vol. 8vo. 1872.

By Exchange.

SOMERSETSHIRE ARCHEOLOGICAL AND NATURAL HISTORY SOCIETY OF TAUNTON. Proceedings of, for 1871. 12mo pamph.

PUBLISHERS. Gardener's Monthly. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press.

The PRESIDENT read a communication from Rev. P. A. Hanaford of New Haven containing a memoir of Miss Quiner of Beverly. Referred to the committee on publications.

The PRESIDENT read a communication from Nehemiah Cleaveland, Esq., containing a sketch of the life of his grandfather, Rev. John Cleaveland, of that part of Ipswich known as Chebacco, now the town of Essex, with the letters and journals copied and condensed of the campaign of 1758, having received the appointment of chaplain to one of the regiments from Gov. Pownall. Referred to the publication committee.





3 2044 072 223 191

